

The magazine for **AUSTRALIAN** radio amateurs

# Amateur Radio

Volume 74 No 11  
November 2006



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# Amateur Radio

Volume 74, Number 11  
November 2006

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## Editorial

**Editor:** Peter Freeman VK3KAI  
editor-armag@wia.org.au

**Technical Editor:** Peter Gibson VK3AZL

**Publications Committee Members**  
Brenda Edmonds VK3KT  
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## All circulation matters

[nationaloffice@wia.org.au](mailto:nationaloffice@wia.org.au)

## How to submit material

### General and Technical articles

Secretary  
AR Publications Committee  
PO Box 2176,  
Caulfield Junction Vic 3161  
or [armag@wia.org.au](mailto:armag@wia.org.au)

### Columns and letters to Editor

Editor  
AR Magazine  
PO Box 273  
Churchill, Vic 3842  
or [editor-armag@wia.org.au](mailto:editor-armag@wia.org.au)

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### Registered Office

10/229 Balacra Road,  
Caulfield North Vic 3161  
Australia  
Phone: 03 9528 5962  
Fax: 03 9523 8191

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## Our Cover this month

Barry Whittle of Gembrook, Victoria, now Barry VK3FBDW, is the 1,000th person to have his qualification for an Amateur Operators Certificate of Proficiency (Foundation) certified by the WIA Exam Service. A great achievement by Barry. 1000 new Foundation licensees certified in less than one year is a great achievement for amateur radio. Story on page 15.

### Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, 'How to write for Amateur Radio' is available from the National Office on receipt of a stamped self-addressed envelope.

### Back Issues

Back issues are available directly from the WIA National

Office (until stocks are exhausted), at \$4.00 each (including postage within Australia) to members.

### Photostat copies

When back issues are no longer available, photocopies of articles are available to members at \$2.50 each (plus an additional \$2 for each additional issue in which the article appears).

### Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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A radio communication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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### Registered Office of the WIA

10/229 Balacra Road, Caulfield North VIC 3161

Tel: (03) 9528 5962 Fax (03) 9523 8191

email: nationaloffice@wia.org.au

http://www.wia.org.au

All mail to

PO Box 2175 Caulfield Junction VIC 3161

Business hours: 10am - 4pm weekdays

### National Office staff

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# Editorial comment

## One year of the new licence structure

This editorial was written 12 months after the formal announcement and commencement of operation of the revised licensing conditions in Australia.

In the months leading up to the formal announcement, the WIA and many of its members committed large amounts of time and effort in preparing for the introduction of the Foundation Licence. With all the systems and materials in place, the task of training and accrediting Assessors commenced.

The outcome was a new system for the training and assessment of candidates for the new Foundation Licence. The first trial training and assessment event occurred just before the official release of the Licence Conditions Determination Amendment, if I remember correctly. As a result, the licensees were on air very soon after the formal commencement of the new system.

There are now over 1000 persons qualified. Of course, much of the credit for this must go to the clubs, as Michael Owen VK3KI rightly identifies.

Congratulations to all involved in the development of all stages of this new system. Significantly the ACMA was sufficiently confident of the new assessment regime to allow a change in the assessment system for the higher levels of licence - Standard and Advanced.

Gone are the exams with the immediate sealing of the papers, forward the package off to the WIA Exam Service and waiting for the results to be returned. The assessment system now allows for immediate feedback to the candidate. Even better, the Exam Service has refined their systems, with a more rapid turn around of paperwork which will allow a Licence to be issued.

Whilst some individuals consider that there may be improvements that can be made to the entire training and assessment system, I am certain that the majority will agree that we have come a long way in the last two years. Well done to all involved.

There still remains some possible fine tuning of our Licence Conditions, as a result of the period of consultation and the publication of the Outcomes paper. At the very least, we should see the various regulatory documents combined into a single comprehensive document.

## Vale June Fox

For many years, a visit or call to the WIA Office would be welcomed by June Fox (or her friendly voice). Much of my interaction with June involved Examination Events, as an Accredited Invigilator under the old assessment system. June was always bright & cheerful, always helpful. June passed away peacefully on 15 October. June will be missed by all who interacted with her. An SK for June appears in this issue.

## Systems

The AR magazine production system is complex. The AR Publications Committee guides and assists me in the processing and review of material submitted for publication.

Our many regular contributors send in columns and news from clubs or the state-based organisations. Most editorial material comes through me for review. Ordinary articles are acknowledged on receipt but can take some time to move through the registration and review process. Each article is reviewed by a technical editor and images and diagrams brought to publication standard if required.

The articles are then forwarded to me for a further review before joining the pool of articles ready for publication. I will then forward the article to the publication house for the next issue being prepared. Then we have a small team of proof readers, to find those niggling little things missed along the way.

This entire process is just one of the systems in place to deliver your magazine. We also have the maintenance of the membership database and mailing list, the production house, the 2 printers - one for the cover and another for the internal pages, the packaging of the final magazine, the mailing house/distributor and then finally Australia Post.

The teams have been aiming to have the magazine in the majority of members' mailboxes early in the first week of each month. We finally achieved that with the October issue, except for some members. A system error at distribution occurred, and some received their copy only after we printed additional copies. Please accept everyone's apology for this delay. The appropriate team has resolved that particular error - let us hope that we do not find any more gremlins.

## **"That Was the Week that Was" one year on**

**"That Was the Week that Was" was the headline for the WIA Comment published in the November 2005 issue of Amateur Radio.**

It was written around the fact that the new Australian amateur licence structure came into effect on 19 October 2005.

Let me quote a couple of extracts from that Comment.

"The Foundation Licence is the new gateway to amateur radio.

The ACA, in its "Outcomes of the Review of Amateur Service Regulation" May 2004, reported that over two-thirds of all submissions were in favour of the introduction of a foundation licensing option, similar to the Foundation licence in the United Kingdom.

The Foundation qualification places emphasis on the safe operation of radio equipment, and includes the assessment of a practical element involving the operation of transmitters and receivers and a multiple choice written paper covering safety, operational and regulatory matters.

To meet the requirement for a practical element, the WIA has introduced a new system of assessment of competency for the qualifications for the new licences, relying on qualified, accredited and registered WIA Assessors, who can undertake the practical assessment and also mark the examination papers."

It is now one year on.

Let me focus again on the Foundation licence. Have the changes been successful? Do we have more amateurs because of the new entry-level licence? Are we better off?

On 29 September 2006, just 3 weeks short of a year from the coming into force of the new licence structure, the WIA issued the 1,000th certification of qualification for an Amateur Operator Certificate of Proficiency (Foundation).

That figure of 1,000 qualifications may be broken down by location as follows:

Australian Capital Territory	38
New South Wales	277
Victoria	353
Queensland	87
South Australia	111
Western Australia	50
Tasmania	74
Northern Territory	10

A year ago, in the November 2005 WIA Comment, I said that over 70 people had qualified as WIA Assessors. We now have 141 WIA Assessors and 15 Nominated Assessors across the country. And so in the year the number of Assessors has doubled.

Some of those Assessors have conducted many assessments, some have yet to conduct an assessment.

What does all of that tell us?

It probably tells us that initially, and at least in some parts of Australia, the resource to assess candidates was much more limited than today.

It highlights the fact that so much depends on the clubs. Those clubs that make sure they have the right number of WIA Assessors to do the job, and those that promote and conduct the courses determine how successful the whole program is in their area. A small number of clubs have been responsible for many of the new licensees, with many clubs each responsible for a smaller number of the new "F" calls

We cannot complain about how this has worked, as if all the clubs had promoted courses and conducted Foundation courses with the same enthusiasm, I have no doubt that the WIA Exam Service would have been overborne and unable to deliver the service that it is now delivering.

It also tells us that the clubs have been more active in some states than in others in establishing, promoting and conducting Foundation courses. It means that we have every reason to look forward to a further 1,000 new "F" calls in the second year of the entry level licence as clubs in new areas commit to establishing, promoting and conducting courses.

Looking at the figures on a state basis, it is clear that there is a real opportunity in Queensland, as an area that has not yet been fully exploited.

At the Conference of Queensland Clubs in Brisbane (conducted on 14 October 2006 by the WIA Queensland Advisory Committee for the WIA), I pointed to the very low figures for Queensland. Whilst I acknowledged the real contribution

of some clubs, I suggested that an opportunity to attract new amateurs must exist in Queensland. It was agreed that the opportunity was there and I am sure that many clubs, perhaps with some clubs combining to do so, will be giving a priority to attracting new amateurs and conducting courses to qualify them.

We have been lucky that different clubs have picked up the challenge at different times. If there had not been a gradual coming on stream by the clubs and Assessors, the WIA Exam service would not have been able to give the service it now delivers.

One person who was anxiously waiting for the 1,000th Foundation licensee was the late Chris Jones VK2ZDD, who had done so much to encourage everyone involved in the establishment of the WIA accreditation system, the course conducted by the clubs and their promotion and the assessment of candidates.

The success of the Foundation licence and the new WIA system of assessment of competency for the qualifications for the new licences is due to the effort and commitment of very many people, but no-one more than Chris.

I should also repeat what I said at the IARU Region 3 Conference in Bangalore: that the WIA does not presume to say that the Foundation licence would have the same success in other countries. All we will do is share our experience as best we can, and leave it to those who know their own environment to judge whether our experience can help them.

I believe the Foundation licence has been successful in Australia. It has increased, in a year, the total number of amateurs by around 1,000. It has introduced new people into amateur radio and into the clubs, and the WIA membership has grown significantly with the new "F" call members.

And, importantly, I believe we can look forward to a continuation of the success over the next year.

**ar**

# WIA News

## WIA Director on ABC radio

WIA Director Robyn Edwards VK6XRE promoted amateur radio and the WIA during an appearance on the ABC Goldfields breakfast program, hosted by Christina Morrissey on 4 October 2006.

The topic was really International 10-4 Day but as the program host wanted to discuss the codes used on radio, Robyn was able to discuss all radio codes including Morse code, the Q code and the fact that "SOS" is now 100 years old.

The tiers of "recreational radio", CB, Amateur Foundation, Standard and Advanced licences were discussed, and Echo Link demonstrated by connecting to a repeater in Kent, England and listening to its identification introduction.

The WIA web site and a local contact number were also mentioned.

## National Contest

### Coordinator

Contests are an important aspect of the WIA's activities. For some years Ian Godsil VK3JS, as the WIA Contest Coordinator, has promoted and coordinated WIA contests. Ian has also contributed a regular Contest column to *Amateur Radio*.

Ian advised the WIA Board that he wished to step down from this role. The Board is very grateful for Ian's long and valuable contribution to amateur radio and to the WIA, and has extended the WIA's thanks to him.

The Board has appointed Phil Smeaton VK2BAA as National Contest Coordinator to replace Ian.

Phil has quite a history in contesting. An avid contesteer when living in the British Isles, Phil has also worked under a string of call signs with contest teams where he has used every mode possible. Today, as an Australian resident, Phil does not have an antenna farm advantage, yet still has a high presence in many contests.

As noted in the October edition, Phil will also take over the Contest column in AR, continuing to provide information and contest dates.

## October AR

The October issue of *Amateur Radio* was received by most members very early in the month, thanks to a real effort by Editor Peter Freeman and everyone involved to avoid the delays that have led to regular mid month deliveries.

The October AR delivered to some members had a wrong membership 'paid to' date on the address sheet. This can be disregarded. The correct date will be shown in future.

## New BPL Trial Switched On in Mount Beauty, Victoria

A new BPL trial by SP-Ausnet has recently been activated in Mount Beauty, Victoria. The service provider is SP Ausnet, with Schneider Electric, with providing all hardware components. Schneider Electric is an owner of Clipsal Australia.

Mount Beauty is a town 339 km northeast of Melbourne in the Victorian high country. The population is about 1,700, swelling to many times more in the snow season.

The trial covers about 8 streets over 1-2 square km, and the access BPL service is to be provided free for 6 months to any residents within that area.

Power distribution within the trial area is overhead and BPL equipment has been installed on every second or third pole. It is believed that many BPL modems have already been installed.

Radio amateurs within the BPL trial area are suffering BPL interference and the WIA is currently assisting them and closely monitoring the trial.

## New 40 m broadcast channel for VK4

The 7 MHz WIA news broadcast channel for southern VK4 shifted in frequency from 7118 kHz into the new broadcast segment at 7130 kHz on 22 October 2006.

"The change is in accordance with the new WIA 40 metre band plan, and also removes the interference caused by the PNG broadcast station on 7120 kHz", commented WIA Director, Glenn Dunstan VK4DU.

## New Measurements Show Aurora BPL's Susceptibility to Interference

Justin Giles-Clark VK7TW and his team at the Radio and Electronics Association of Southern Tasmania (REAST) have measured the susceptibility of the Aurora Energy BPL trial in Hobart to nearby radio transmissions.

Their Mt Nelson RF Susceptibility Report shows a very high degree of disruption from very low power transmitters

([http://reast.asn.au/2006/VK7\\_BPL\\_RF\\_Susceptibility\\_Tests.pdf](http://reast.asn.au/2006/VK7_BPL_RF_Susceptibility_Tests.pdf)).

Less than 5 Watts power output from a mobile station within 60 to 80 metres of a modem seemingly adversely affects the BPL service. This represents an effective radiated power (EIRP) of less than 1 Watt due to the inefficiency of the mobile antenna. Mobile HF radio equipment normally operates with an output power of 100 Watts.

## QLD Clubs Conference

WIA Affiliated Queensland clubs attended a Conference of Queensland Clubs in Brisbane on 14 October by the WIA Queensland Advisory Committee.

WIA President Michael Owen VK3KI gave a report on recent activities, and sought feedback on the progress of the Foundation licence qualification program and also sought opinions on the way the Board should proceed in setting up the Advisory Committees for the future.

WIA Vice President Ewan McLeod VK4ERM talked about emergency communications, particularly from a Queensland view-point.

Both Ewan and Michael attended a meeting of the Sunshine Coast Amateur Radio Club the next day.

## ARRL Appeals FCC BPL Rules to Federal Court

The American Radio Relay League (ARRL), the US national amateur radio society, has notified the US District Court of Appeals-DC Circuit that it is appealing certain aspects of the FCC's Part 15 rules governing broadband over power line (BPL) systems. The ARRL Executive Committee ratified plans to go forward with the Petition for Review when it met on 7 October 2006. The ARRL is asking the court to review the FCC's October 2004 Report and Order establishing Part 15 rules to govern BPL systems as well as its August 2006 Memorandum Opinion and Order that dealt with various petitions for reconsideration of the 2004 Report and Order, including one from the ARRL.

Several reconsideration petitions of the initial FCC proceeding - including one from ARRL - called on the FCC to strengthen rules aimed at protecting licensed radio systems from BPL interference. Instead the ARRL says that the FCC has limited the extent to which an unlicensed, unintentional radiator has to protect a licensed mobile station.

ar

# GPS software for your computer

Ian Gianvillia VK3AQU  
lorian@netc.net.au

Sometime ago I came across an article about GPS software for your computer. GPSS from Sunninghill, as it is known, is a programme written by Robin Lovelock.

Although it won't give you turn by turn directions without a great deal of detailed work, it is still a powerful programme and one that I felt would interest many radio amateurs. The beauty of this programme is that it speaks, allowing you to concentrate on driving. With suitable software added it will even respond to spoken commands. You can add your own voice and maps to give it that personal touch.

The web site for this GPS software is: <http://www.gpss.co.uk/>. Or just type "GPS Software" into Google.

This web site is extensive and there is no need for me to go into great detail. Go to Robin's homepage above and download the help file as well as Help from Dave Gehman. Print these out to use as your instruction manual. Follow the links and download the two files GPSSA and GPSSB as well as maps for Australia. Place all these files into one directory

and execute them. The GPSS program runs from GPSS.exe. If you don't have a GPS receiver or GPS mouse, don't worry, because the programme goes into a demonstration mode if no GPS receiver is detected.

To get GPSS working in your area, you will need a GPS receiver or mouse. I chose the BU-303 shown in Fig 1 (available on eBay). This is a small device with a metre or so of cable and a USB plug for connection to the PC/laptop. It has a very strong magnetic base for placement on the car roof, but I've found the dash to be just as effective, as long as it can receive a satellite signal. The small LED on the side will blink to indicate signal lock. Before running GPSS with the mouse, go into the gpss.cfg file and change the com port setting to suit the port the GPS mouse plugs into, and the home location to your own. My GPS mouse came with a programme on a small CD which can be used to detect the port allocated to the mouse, if needed.

It goes through a start up routine and

if receiving a signal, it will change to the best map it has for that area.

The program can be configured to display an instrument panel over your map as shown in Fig 2 and announce speed and distance in kilometres and metres, or miles and feet. How often to speak? What to say? Where you are? In fact, a whole host of things are at your control via simple WordPad files. You can even record your trip for later replay.

Just look at how much information is available from the instrument panel. The top dial is direction and distance to your destination. The centre one your current direction and the bottom one your speed. Also displayed are distance travelled, minutes to destination, heading, altitude, and rate of climb. As soon as you start to move, GPSS will announce your speed, direction and distance, and estimate the time of arrival at your destination, if programmed. The destination can be pre-programmed for entry by a single key press or by placing the mouse pointer over the destination and clicking. A small icon on the screen shows your current position. Once you change the gpss.cfg file to your home co-ordinates, pressing "H" will automatically make home your destination.

In the first two years since release in 1995/96, several million copies were



Fig 1 The BU-303 takes little room on the dash

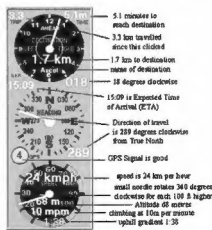


Fig 2 The instrument panel is comprehensive

# The difference between three and five elements

Felix Scerri VK4FUQ

This article might alternatively be titled, "what is antenna gain, and what does it really mean, in practice?" These questions may sound a bit philosophical but ongoing testing between two antennas has made me wonder about these questions.

The comparison is between two 2 m VK4FUQ "strip" Yagi style designs that are proven consistent high performance Yagi antennas. I noted in an earlier article on small Yagi beam maintenance, that the (slightly) longer five element was consistently better than its smaller three element counterpart overall.

This may be the expected result, though, in theory, the "gain" difference should be "only" in the order of 2.5 dB. It has often been stated that "3 dB" is the minimum "level" difference that can be discerned. Well, at least when it comes to antennas on VHF, I'm not really sure about that! Over the last couple of months the comparisons between the two 2 m Yagis have shown that the theoretical 2.5 dB means quite a lot in practice!

One of the really interesting things noted during the comparisons has been shown up by "low power" testing. My 2 m hand-held has two RF power levels. "High" power is about seven watts (FM) and low power is nominally one watt. Using our "local" 2 m repeater in Townsville (about 100 km road distance away) as reference, with the little three-element Yagi on a six metre pipe mast.

Access at the high power setting was good, as was expected.

But it was almost impossible to access the repeater at the low power setting. Occasionally the repeater could be "keyed" up, but was impossible to "hold it" reliably at the one watt power level.

In contrast, the five element "strip" Yagi (same mast and fed with the same coax) had absolutely no trouble in keying and holding the repeater at the low level, 100 percent of the time. Such is the difference between three and five elements!

In the end, the degree of "difficulty" and loss over any given radio path will determine just how much antenna gain will be required for consistent success over that path. The same sort of thing applies to RF power level. Recent observations on a local 40 m "ragchew" net, where the radio path is consistently excellent, have shown up the same sort of observations. One test, going from 100 watts SSB down to three watts peak, the received signal only went down from S9 + 10 to an indicated S7 on the "S" meter with no deterioration in overall readability. Yet I have observed the reverse situation on 20 m, where, on a bad propagation day, two stations running large Yagis and maximum allowable power could not make a reliable contact on a path that was normally quite reliable.

Back to my observations with 2 m beams, the difference in "gain" between

the three and five element Yagis allowed good access into the "local" repeater on low power with one Yagi and not the other. In many contact situations a slight gain difference will go unnoticed; however, here is where it definitely will be noticed! Perhaps it comes down to a considered analysis of what is achievable in terms of physical antenna size and overall construction difficulty, matched against the intended radio path loss and, of course, the signal strength profile one would be happy with.

There are some modes that do require a lot of antenna gain, such as EME and weak signal VHF/UHF DX working being two obvious examples. In these scenarios, as much antenna gain as possible, along with judicious power, is almost mandatory for good consistent results!

My 6 m pipe mast could easily hold up either beam, although the five element is almost twice as long as its smaller brother (an interesting observation in terms of achievable gain). It is still physically very manageable, and given the improved performance into our local repeater the five element is now atop the 6 metre pipe mast and the little three element has "gone portable".

Ending with a little home spun philosophy; it's almost like everything else in life. There are tradeoffs and conflicting demands existing everywhere!

ar

## GPS software from previous page

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GPSS is now available for the Pocket PC and Smartphone, and Robin is about to put both remote tracking and Direction Finding into the package.

The program has a great many features. Just how detailed it becomes is entirely up to you. To help you find your co-ordinates you might like to try: <http://www.csu.edu.au/australia/latlong/index.html>; Google Earth; or even the RACV VicRoads directory or equivalent for your state.

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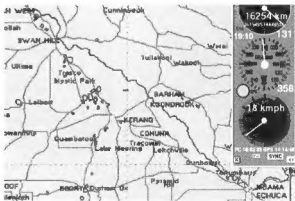


Fig 3 What you see is where you are



# Transmitting Baluns for 1.8-30 MHz

Ron Sanders VK2WB

*Amateur Radio* magazine had an interesting series of articles on connecting amateur equipment to antennas in the April, May, June, and July 2005 issues. The articles covered the theory behind making matching transformers for the HF amateur bands using transmission line techniques. The following article uses that information and provides plots of various arrangements to show the different effects due to transmission line characteristics and ferrite material. Here is additional information on using ferrite rods instead of toroid cores.

## Test setup

All measurements were made with the Autek VA1 antenna analyser. This versatile instrument can measure the SWR of a load at any frequency between 0.5 and 32 MHz for various matching impedances between 25 and 450 ohms. Fig 1 shows the setup with a toroid transformer connected to the VA1 input and having a pure resistive load (small carbon trimpot) on the transformer secondary. This trimpot is set to a value which reflects the impedance selected on the VA1 via the transformer ratio - eg with a 4:1 transformer and the VA1 set to 50 ohms, the trimpot is set to 200 ohms on the secondary side.

The reading errors inherent in the VA1 were subtracted from the actual measured SWR values via a spreadsheet and the corrected SWR values are then plotted against frequency from 1.8 to 30 MHz.

## Transmission line winding techniques

The windings all consist of twin-wire transmission lines. These lines will have a characteristic impedance ( $Z_0$ ) depending upon the wire diameter, spacing between the wires, and any separating material between the wires. To achieve good matching (SWR near 1.0:1), the  $Z_0$  should be close to the optimum for the chosen transformer impedance ratio. This is covered in the *Amateur Radio* articles referred to above.

As enamelled copper wire (ECW) is the most common wire available for winding, I chose three different sizes which are all generally available in Australia. Some configurations have used a common polyethylene spacing twine (Kinnears 504TEX, available from craft shops) to get an acceptable match. I have placed a layer of PTFE insulating tape (plumbers thread sealing tape) on each core before winding.

Figures 2, 3, 4 and 5 show the different bifilar winding and spacing methods.



Fig 2 - All bifilar pairs and turns close-spaced.



Fig 3 - Each bifilar pair separated by twine.

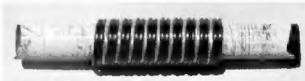


Fig 4 - Bifilar turns separated by twine.



Fig 5 - All turns separated by twine.

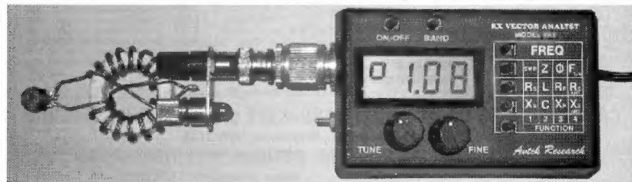


Fig -Set-up of analyser

## Baluns

All baluns use #61 ferrite as rods (R-61-037-300) or toroids (FT-140-61 or FT-240-61). This material is best for transmitting applications in the 1.8 - 30 MHz range. All windings are centred on the rod or evenly spaced around the toroid as shown in the pictures. Rod dimensions are 9.4 mm diameter x 75 mm long.

## Toroid dimensions:

FT-140-61 35 mm od x 23 mm id  
x 12.7 mm height  
FT-240-61 61 mm od x 35 mm id  
x 12.7 mm height

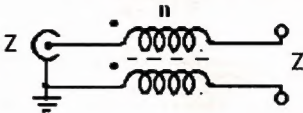
## Baluns using rods

### 1:1 Balun

See Fig 6 for the schematic. The plot in Fig 7 is the result in winding 17 bifilar turns of 1.25 mm ECW all close-spaced around the ferrite rod. Now compare this with the plot in Fig 8 that has 17 bifilar turns of 1.0 mm ECW on the same rod, but with spacing twine between some or all wires. The combination of spacing twine and wire gauge has improved the

## n turns bifilar winding

### • start



## 1:1 Nonisolating Balun

Fig 6 - Schematic

SWR for 75:75 and 50:50 baluns, by making the twin transmission line Zo closer to the optimum in each case.

### 1:4 Balun

I have called this arrangement a 1:4 balun to differentiate it from the 4:1 balun shown in Figs 12 and 13.

This balun transforms 50:12.5: this

is useful for feeding a three element Yagi beam from coax. This design is based on one in the Transmission Line Transformers Handbook by Jerry Sevick and cannot be duplicated with a toroid core. The balun schematic is shown in

continued page 10

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Fig 9 and the actual balun is shown in Fig 10.

The plot in Fig 11 is restricted at the low frequency end as the transformer is usually used to feed a Yagi beam antenna.

## Baluns using toroids

### 4:1 Balun

The bifilar pairs are all held together by PVC sleeving (Fig 13b) and the interconnections are correctly phased as shown in Fig 12. The input (low impedance) connection is on the left in Fig 13a.

The plot in Fig 14 shows an unacceptable SWR below 5 MHz for both 50:200 and 75:300. This indicates insufficient inductance in the winding causing unwanted loading at the low frequency end. The remedy is to increase the turns or use a higher permeability core. Fig 15 shows the result when using the same size core made from #43 ferrite ( $\mu$  800), but only using 2 x 8 bifilar turns. I have included this plot only to show how the different ferrite improves the low frequency SWR and is not a recommendation to use #43 ferrite in high power baluns. The result of increasing from 8 to 12 bifilar turns per winding is shown in Fig 16 and is the recommended solution.

Fig 17 shows the SWR response of a 4:1 balun using a large FT-240-61 toroid core.

### Power ratings

All these baluns have been tested with resistive (ideal) loads whereas practical use means that loads are not ideal and will affect power capabilities.

Under normal operation the baluns shown here should all be able to handle 600 W of peak power.

The baluns shown in Figs 11 and 17 could operate up to 1 kW.

### Conclusion

These baluns are easily made from materials readily available in Australia. The characteristic impedance ( $Z_0$ ) of the bifilar line is important in getting good matching and is determined by the wire size and spacing material. Most amateurs will be more interested in the 50 ohm plots than the 75, but I have included both to give some idea of the difference in SWR vs. frequency for a given winding when it is terminated in 50 and 75 ohm resistances.

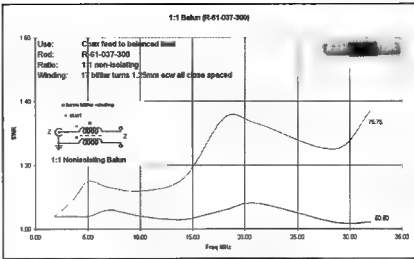


Fig 7 – Plot for all close wound

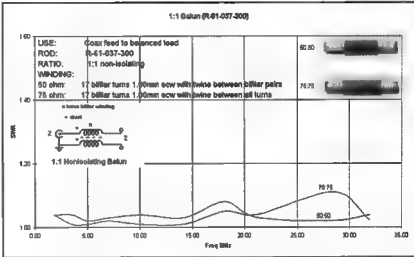


Fig 8 – Plot. Same turns, same rod, but with spacing twine between some or all turns

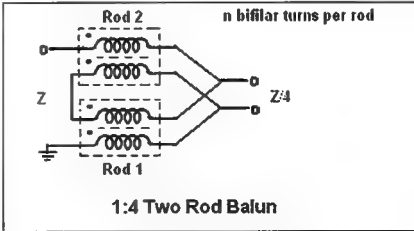


Fig 9 – Two rod balun schematic



Fig 10 Two rod balun

1:4 BALUN (off R41-027-300)

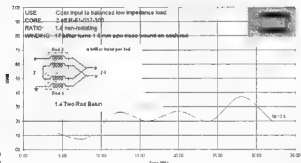


Fig 11

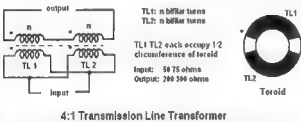


Fig 12

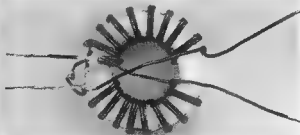


Fig 13a

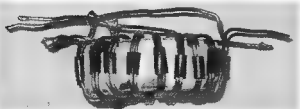


Fig 13b

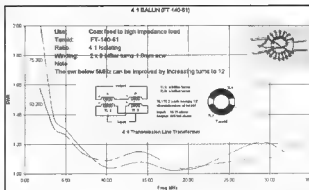


Fig 14

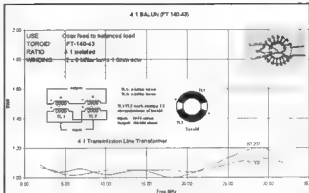


Fig 15

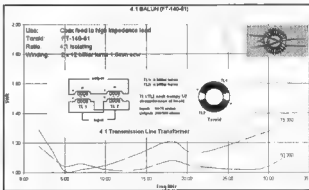


Fig 16

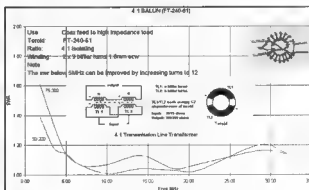


Fig 17

# A 4-125 Linear Amplifier for 160 m

## Part 2 – construction

Drew Diamond VK3XU

The first part of this article appeared in the October 2006 edition of *Amateur Radio*

In order to keep harmonics “at home”, an amplifier of this class must be fully enclosed in an RF-tight box.

The all aluminium home-made chassis/cabinet assembly shown in Photo 1 (p12 Oct AR) measures 410 x 315 x 230 mm WDH, and was constructed very much along the lines of that suggested in Reference 11.

Six 12 mm square-section aluminium rods, which support the front and rear panels, are end drilled and tapped to accommodate 5/32" Whitworth or 5 mm countersunk screws. Additionally, a 12 mm square aluminium rod supports the chassis at a height of 90 mm along the front and rear panels (Photo 2).

The panels and the chassis are made from 3 mm aluminium sheet, which results in a rigid construction. Top, side and bottom covers are made from 1.3 mm perforated aluminium sheet.

According to References 4 and 8, valves that have a metal skirt base should be mounted at chassis level, so that they may ventilate properly by air movement from beneath the base (which exits the holes provided in the valve's skirt).

“All-glass” valves, like the QB3/300 and RS1007, should be mounted below chassis using suitable spacers (as in the prototype) with the internal ground ring at chassis level, and with sufficient clearance for air to circulate up past the valve's envelope (Eimac 4-125s were tested in the prototype model by fitting extension prongs to each valve pin). Install fibre washers each side of the mounting screw-holes to prevent cracking the ceramic socket.

The above chassis view in Photo 3 shows a suggested layout for the major components. HT transformer T3 creates a fair amount of leaked magnetic flux. To avoid de-magnetizing the front-panel-mounted moving-coil meters, the transformer should be mounted well towards the rear of the chassis. The top cover must clear the valve top connectors

by a good margin - at least 20 mm is suggested.

For HT transformer T3, find a discarded microwave oven - the bigger (often brown) appliances from the 1980s ordinarily have larger transformers of about 450 to 500 VA. The (usual) 2 kV winding has one side grounded to core. However, the insulation is almost always of a high standard, and so the winding wire may be carefully lifted from the core, a new wire attached, and the connection and surrounding area silicone, as described fully in Reference 5. When disassembling the appliance, save the HT wires and the special HV fuse (if fitted - sometimes hidden inside a length of spaghetti tube).

Altronics and Jaycar can supply a 160 VA toroidal transformer with two 18 V ac windings, which is ideal for T2. Using 1.9 mm enamelled copper wire (ecw), wind on 24 turns initially, with perhaps 300 mm

each end for spare. Carefully power the primary from 240 V ac, and measure the winding voltage, which should read about 5.2 or 5.4 V ac. If less than 5.2 V ac, wind on one or two more turns and test again. You will need a winding voltage just a tad over 5.0 to allow for drop along the wires that supply the heaters.

The toroidal transformer must be mounted with suitable insulating hardware such that the winding is adequately spaced from the chassis. Circular fibre or ABS plastic end washers are suggested. The transformer may be mounted upon the chassis with a ¼" Whitworth bolt and nut, as shown in Photo 2.

You can test the loaded voltage by applying the 5 V to your two socketed valve heaters; check that you have close to 5 V right at the valve pins. Note that each heater should be wired individually with 41/0.3mm insulated automotive wire to the 5 V winding (not “daisy-chained”).

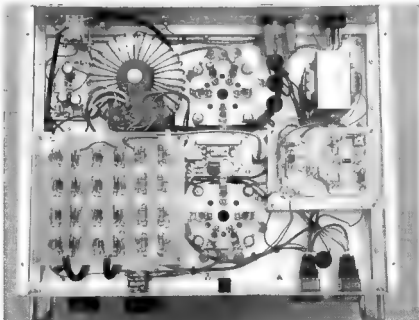


Photo 2 – Under chassis view of the 4-125 160 m linear amplifier.

Electrical centre for the centre tap (ct) may be found by hooking your ac voltmeter to one end of the winding, then, using a sharp pocket knife connected to the other meter lead, carefully nick into the ecw and locate the 2.6 V point.

The HT rectifier bridge, noise suppression capacitors, filter capacitors and bleeder resistors are accommodated upon a single-sided circuit board measuring 165 x 145 mm, visible in Photo 2. Holes are only needed for the pins of the 220  $\mu$ F capacitors, which are mounted on the fibre side of the board (not visible, but directly under each of the 100 k bleeder resistors on the RHS of the board).

Provide plenty of clearance around all components on the HT board. Diodes, 4.7 nF capacitors and bleeder resistors are all soldered directly to the copper side of the board, thus easing any future service work. Note the careful routing of the wire carrying the +2500 V across to the feed-through insulator that in turn takes the HT from below to above chassis.

The only "off-the-shelf" wire that I could readily find for connection between the 2 kV ac transformer and rectifier board (visible at the lower left hand side in Photo 2) turned out to be "ignition-wire", purchased from a local auto parts supplier.

Bias and screen supplies are accommodated on another separate 90 x 120 mm circuit board in a manner similar to the HT board. This circuit board is visible to the right in Photo 2, immediately beneath transformer T2.

The signal input transformer may consist of 12 turns of #22 (0.63 mm) ecw, or hook-up or telephone wire (which I prefer) for the secondary, and four interleaved turns of the same wire for the primary (that is, the primary is wound so that it fits between the turns of, and in about the middle of, the secondary winding).

The signal input components may be fitted upon a "paddyboard" style 50 x 80 mm circuit board (Reference 12) positioned neatly on stand-offs between the valve sockets, as shown in Photo 2.

To keep losses to a minimum, the pi tank output coil should be mounted upon insulated posts and positioned reasonably clear of other objects (Reference 13). The 37  $\mu$ H coil consists of 32 turns of 1.9 mm ecw close-wound upon an 80 mm length of 50 mm inside diameter (marked "50 mm", but actually 55.5 mm outside diameter) white PVC pipe.

The output filter (Photo 4) may be accommodated "paddyboard" style upon a circuit board measuring 120 x 50 mm. Take care winding the 1.9 mm ecw on to the T130-2 toroidal cores - they are rather brittle and may break if excessive force is applied. Use 500 V (or higher) mica capacitors. Ceramics can be used at a pinch, but they are rather lossy in RF filter applications (although fine for by-pass and coupling duties).

The voltage tripler for the relay may be a 50 x 70 mm circuit board assembly similar to that of the input circuit, and positioned near the relay (upper left hand corner, Photo 2). The relay itself (Jaycar P/N SY4065) may be positioned snugly between the coax input and output connectors (don't fall for the c/o contact pin-outs trap as I did - check!).

Plate top cap connectors were home-made from 16 mm diameter aluminium rod, axially bored to slide fit the cap. Some cooling of the valve plates occurs through the top caps, so they should have some heat radiating capacity. Mine are fixed to the connector with a grub-screw, which bears upon the side of the top cap to assure a good electrical connection.

The parasitic suppressor consists of three parallel 150 ohm, 3 W metal-film resistors fitted inside a four-turn coil of 1.9 tinned or ecw. They are connected to the top of the 1.1 mH plate choke with braid wire extracted from RG-58 coax.

The HV fuse and 22 ohm current limit resistor are mounted above chassis upon ceramic stand-off insulators.

The plate and grid current meters are each enclosed at the rear in a shield pot made from sheet copper, which in turn is grounded right there with solder lugs fitted under each meter mounting nut.

The Safety/dc return choke on the output side of the pi tank may be any well-made, pie wound radio frequency choke of about 2.5 mH. The dc resistance should measure less than 30 ohms.

Test its current handling ability by passing 1 amp from a power supply through the choke for a minute or so - it should not over-heat or fuse. Remember, should the pi coupling capacitor fail, we need to blow the fuse in the HT dc supply line.

During construction, the power supplies may be tested as they are completed. T1 may be fitted and the primary side wired. All connections should be insulated to prevent accidental contact, and fused as shown.

The heater winding may be tested as previously described. Check that the bias supply is working, and that it may be adjusted between (about) 100 and 120 V. Then T2 may be wired and the 500 V screen supply measured.

Take extra care when measuring the 500 V and 2500 V supplies. Connect your voltmeter test probe with all power

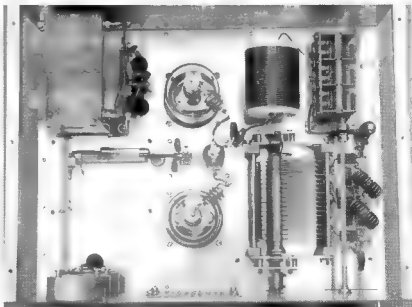


Photo 3 - Top view of the 4-125 160 m linear amplifier showing the layout of the major components.

removed, making sure that meter leads do not pass over or near other metal parts (2500 V would almost certainly "blast through" the insulation of ordinary test leads).

Adopt a strict "hands-off" policy when measuring the HT voltage.

It is suggested that you power-up the HT supply initially with a 100 W, 240 V lamp in series with the primary of T3 (as described in Reference 5) to check for any faults before applying "full" mains to T3.

On switch-on, the lamp will briefly glow brightly, then fade to about half brilliance, thereby indicating that all is probably well.

## Operation

It is first necessary to establish the amplifier's input impedance at 50 ohms by adjustment of the compression trim capacitor. No mains primary power need be applied but the valves should be installed. Connect the exciter (transceiver, or low power transmitter) to the amplifier input using short lengths of 50 ohm cable. Interpose a sensitive SWR meter between. Using an external dc power supply, feed 12 V to the relay coil (observe polarity).

Now apply a 5 W, 1.850 MHz carrier signal to the input, and adjust the trim capacitor for minimum SWR. It should be possible to reduce it to a very low value. If not, find out why. Alternatively, if you have access to an antenna analyser or similar instrument, then you will know what to do.

Connect a suitably rated dummy load/power meter to the amplifier's output. Also connect an oscilloscope (of sufficient bandwidth) to the output using a through-line coupler (Reference 14). The PTT line from the transceiver must be correctly connected (relay is operated by pulling the PTT line to ground).

Set the 'Bias' pot for maximum voltage. With no input signal applied (receive mode), power-up the amplifier, heaters only at first. Note that there should be little or no plate current indicated. When the heaters have warmed up (about 10 seconds), apply HT. Adjust the Bias pot for a no-signal standing plate current of about 25 mA.

Set the output 'Tune' capacitor at about 2/3<sup>rd</sup> mesh, and 'Load' at about half mesh. Switch to transmit, and observe about 120 mA plate current. Quickly adjust 'Tune' for maximum output. You should have about 100 W output power indicated.

Briefly increase the drive carrier signal to about 20 W, then promptly re-adjust Tune and Load for maximum output, which should be about 400 W. Plate current will be about 250 mA. Driving up to about 2 or 3 mA of grid current (AB2) does not appear to cause serious distortion.

Without re-adjusting Tune and Load, drop the carrier back to 5 W input, then apply a 100% modulated AM signal of known good quality (by switching HT off, the exciter's signal is routed around the amplifier, and may thus be viewed directly).

Observe that the peak voltage level doubles (representing 400 W PEP), and should have nice text-book bullet-shaped peaks and well-defined troughs, indicating that the amplifier is working in a linear manner.

If the valves are not graphite plate types (eg 4-125s), they may glow dull red at the 100 W output carrier level. This is to be expected, as overall efficiency (at that level) is only about 45% (which accords with other similar published patterns). Of course, efficiency is much higher at full output.

You may observe a faint blue glow upon the inside glass envelope. This indicates a good "hard" valve.

Moreover, for brand new valves, you may find, as I did, that power output increases a smidgen after several hours

"burn-in". Conversely, tired valves with low emission may not deliver full 400 W PEP output.

## Parts

Mention has been made of two local electronics vendors who can supply the ordinary components, such as low-voltage power transformers, resistors, capacitors, 1 kV/3 A diodes, neon-illuminated rocker power switches, 12 V relay (Jaycar P/N SY4065), etc. Additionally, the HV ceramic capacitors for the HT power supply, and the heater/screen by-passing, were ordered from Altronics.

Electronic World (tel. 03 9723 3860) supplied the 2.2 nF/6 kV and 1 nF/15 kV ceramic capacitors, 3 W metal film (mf) resistors, 220  $\mu$ F/400 V electrolytic caps (\$2 each at writing) and 15 k/5 W wire-wound resistor.

The 1.9 mm ecw for the 5 V ac heater winding, pi tank coil, parasitic chokes and filter coils may be purchased from "magnet wire" suppliers and/or "transformer manufacturers" - see your local Yellow Pages.

The more "difficult" parts were mail-ordered from Surplus Sales of Nebraska ([www.surplussales.com](http://www.surplussales.com)), including ceramic sockets for 4-125s; P/N TUA-122-275 (used, but like new) and a National 5-pie plate choke, P/N ICH-R-154.



Photo 4 - The output filter constructed 'paddyboard' style upon a circuit board.



The 500 V mica, HV ceramic, 150 pF mica compression and three-gang variable capacitors may be mail-ordered from Antique Electronic Supply ([www.tubesandmore.com](http://www.tubesandmore.com)).

My AWA 350 pF variable capacitor was obtained at a local ham-fest. I have seen plenty of these, or similar units, at local swap-meets, and something like it should not be difficult to find. Plate spacing must be at least 1.5 mm, and maximum capacitance must be at least 300 pF.

The loading capacitor may be any well-made broadcast receiver type three-gang with a capacity of 400 or 500 pF per section. Before installing, check that no grit or other matter is caught between the plates. Clean and lubricate as necessary.

The T130-2 toroidal cores for the low-pass filter are obtainable from any of the Amidon stockists - see Hamads in *Amateur Radio* for your local supplier.

The high-voltage (5 kV) 600 mA, fuses - P/N MWF60 (intended for microwave ovens) - may be ordered from Wes Components, tel 02 9797 9866.

## Acknowledgment

My thanks to the friendly 160 metre fraternity (too many to name, but they will know who they are) for their technical advice, loans of valves, and gifts of parts.

## References and Further Reading

1. *Care and Feeding of Power Grid Tubes*; Varian Publication, 3<sup>rd</sup> edition., 1978.
2. "Re-using Microwave Oven Transformers for HV Supplies"; *Amateur Radio*, March 2006.
3. *Radio Handbook*; Wm Orr, W6SAI, Sams, 23<sup>rd</sup> edition and recent previous editions.
4. "From Circuit to Chassis"; *Amateur Radio*, December 2000.
5. "Paddyboard" Circuit Construction - Revised"; *Amateur Radio*, May 2005.
6. "Notes on HF Transmitting Coils"; *Amateur Radio*, September 2005.
7. "An Oscilloscope in the Shack"; *Amateur Radio*, September 2003.

**Photographs:** Andrew Diamond (photos may be viewed in greater detail on Andrew's web site at:

[www.andrewdiamond.net](http://www.andrewdiamond.net) - click on "gallery", then "technical").

# Barry Whittle VK3FBDW, Number 1,000

Robert Broomhead VK3KRB

**The 1,000th person to have his qualification for an Amateur Operators Certificate of Proficiency (Foundation) certified by the WIA Exam Service to enable him to obtain a Foundation licence is Barry Whittle of Gembrook, Victoria.**

The fact that Barry happens to be the 1,000th person to have his qualification certified is, of course, very much a matter of chance.

But how he became a radio amateur is not.

Barry is a 38 year old mechanical engineer, with a 16 year old son. He says he has been interested in radio since he was 16, and operated on the CB frequencies over many years. Some of his friends were licensed amateurs, and they told him what was required to obtain a Novice licence. From this Barry had a perception that a Novice licence would be far too hard.

Then, earlier this year, Barry was visiting amateur radio retailer and AR advertiser G & C Communications in Cranbourne and was looking at the amateur equipment on display. Craig of G & C told him that it was now very much easier to get a first amateur licence, and so he heard about the Foundation licence.

He purchased a copy of the WIA's 'Your Entry Into Amateur Radio', the Foundation Licence Manual from G & C, read it, decided it didn't look too hard, and decided to take it further.

He telephoned the WIA national office, and was told that his nearest club conducting training courses was the Healesville Amateur Radio Group, and was given the telephone number of the club's contact person, Brian Andrews VK3YBJ, the club president. Brian put Barry into contact with Steve Tregear VK3TSR, the club's Group Leader and a WIA Assessor, who told him that the club was going to conduct a weekend training course in a couple of weeks and invited him to join it.

Previous courses at the club had



WIA President Michael Owen VK3KI presents Barry Whittle VK3FBDW with his certificate

been conducted under the supervision of Fred Swainston, the WIA's RTO and a professional in every way. This course was conducted by Steve with the club's other WIA Assessor and trainer, Ken Taylor VK3TKQ assisted by club President Brian.

Barry describes the course this way; "I found the whole experience interesting and the instructors were more than patient the way they delivered the course and the class all passed on the Sunday."

Before he had even received his new call sign, VK3FBDW, Barry had started the upgrade course being conducted by the Healesville Amateur Radio Group, a 10 week course of 3 hours a week.

WIA Director Robert Broomhead VK3KRB and WIA President Michael Owen VK3KI joined Steve, Ken and Brian at the Healesville Amateur Radio Group's rooms behind the Telstra Exchange in Healesville on 17 October 2006 to meet Barry and, on behalf of the WIA, to present him with a certificate and a copy of the ARRL Handbook.

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## Silent key

### June Fox

#### The voice heard by most WIA members

Brenda Edmonds VK3KT

June Fox was a significant part of the WIA for many years.

With her passing, we have lost a valuable resource, a lot of knowledge, and an ambassador.

She joined the WIA as a bookkeeper in July 1987 and did a fine job of managing the books and finances.

Later, as she assumed responsibility for the functioning of the office, she was the voice at the end of the phone to the many queries, complaints, and appeals that came from all over Australia and sometimes overseas. Few of our members would have met June 'in the flesh' but many would recognise her voice.

June was always cheerful and efficient, and quick to suggest a further approach if she was not able to satisfy at the outset. She had the rare ability of being able to break off what she was doing, attend to one or more phone calls, and then return to the original task without losing the place. Her ability to find a sought reference, phone number or note was legendary.

On many occasions, her work did not stop when she left the office. Work was taken home when the pressure was on, or she came in on a weekend to ensure that arrangements were completed for some event.

The change to the structure of the WIA came at a time when her health was starting to cause problems, but she wholeheartedly embraced the changes and did all that she could to make it a success. She worked hard to make the lot

of her replacement as easy as possible, and was available on request for advice or explanations.

June was a very private person. She talked little of her personal life, her pleasures or problems, but was always interested in the persons around her and the more distant members of the WIA.

When June retired the esteem in which she was held was evidenced by the sum subscribed by members and clubs to help her realise her dream of returning briefly to Darwin. It was a trip very much enjoyed.

The photo was taken at her well-attended retirement party in July 2005.

The WIA extends its condolences to her daughter Lauretta (who on occasions also has been a member of the WIA team) and her brother Earle Russell VK3BER.

Vale June. It was a pleasure to know and work with you.



# WICEN Tasmania (South) tries a new approach for the 2006 Safari Tasmania

Roger Nichols VK7ARN  
WICEN Coordinator Tasmania (South)

The southern Tasmania WICEN group provides results communications for the Tasmanian round of the Australian Rally Championship. Competitor car numbers and times are sent by voice from Special Stage Start and Finish controls back to Rally Command. This year, we successfully trialled APRS tracking of a Course Car, co-habiting the APRS packet traffic with phone traffic on the same network.

For the past three years, the Subaru Safari Tasmania has been held over two days in the Southern Forests around Geeveston in the Huon Valley region.

The topography is rugged with valleys and ridges predominantly at right angles to the path between the rally Special Stages and Command in Geeveston. Stations vary in elevation between 40 and 500 metres (see Fig 1).

Heat 1 is run in the southern of two areas. Heat 2 is mainly in the north, but with one long stage in the south.

Two VHF repeaters were used each day. One, operating above 150 MHz, situated on Bruny Island at a low elevation, took advantage of available paths down the river valleys and across the D'Entrecasteaux Channel, a distance of 20 to 30 kilometres. The return path was up the Huon River estuary (see Fig 2).

The second VHF repeater, on 2 m, had separate locations for Heats 1 and 2. Both sites were at elevations of approximately 600 metres to reach over the ridges to Geeveston. Initially this repeater was cross-band linked into a UHF repeater to Rally Command.

It was sited in a fire tower on a hilltop above the town, but suffered interference from a pager transmitter at the same location. The link proved to be redundant; and better than adequate results were achieved with direct comms between Rally Command and the field repeater.

The link and UHF repeater remained in place, providing access to the system by handheld radio and a "chat" facility around town after hours. All field station sites had been surveyed and, in the main, adequate communication was possible with vehicle mounted whip antennae.

Portable masts were used at the hill top repeater sites and some station sites on Stages, where desirable.

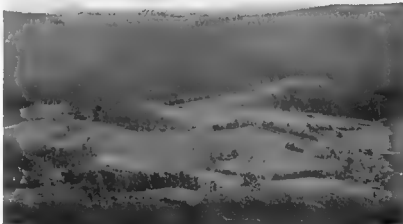


Figure 1 - Looking over the rally ground. Photo John VK7ZZ

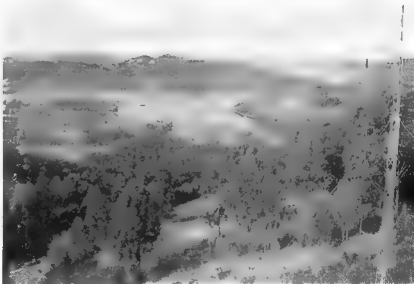


Figure 2 The Huon River Estuary Photo John VK7ZZ

Over the two days, twenty stations were operated, plus Command and repeaters. 38 WICEN personnel were deployed.

Other nets included Rally Command, utilising three permanent, linked, mid-band VHF Forestry repeaters. Course Cars were on two linked Huon Council mid-band repeaters and emergency services on the mid-band Fire network. Each stage had its own net utilising Targa Tasmania mid-band radios and portable repeaters.

In addition, a UHF 'SkyNet' system with airborne repeaters tracked and timed competition cars as they passed Starts, SOS points and Flying Finishes. The primary role of the WICEN network was to give a reliable back up to the weather and multiple-component-dependant 'SkyNet' system.

The WICEN system again proved to be totally reliable throughout. The odd need for adjustment was dealt with on the run with no interruption to services.

This year's event also provided an opportunity for the APRS enthusiasts to play with their favourite toys! The Clerk of the Course was sold the idea of tracking the "Zero" car, the passing of which is the go ahead for competition to start on each Stage. Rally time management is critical and the whereabouts of the "Zero" car plays a major part in decision making.

The problems faced included topography, hard enough to reach the start and end of each stage, let alone all points between, RF congestion and limited hardware availability. The concept of cohabiting APRS packet and voice traffic on the same network was promoted by repeater enthusiast Brian VK7BW. Working with the group's APRS specialist Scott VK7HSE, various approaches were explored, trialled and fine-tuned.

The "Zero" car was equipped with a Laipac G10-I "mouse" GPS receiver, Byonics TinyTrack3 and Phillips PRM8010.

Because the car travels at competition speed and is subject to full competition safety requirements, the unit was enclosed in a foam-padded box and securely mounted in the car boot. The fitting of the boot lid quarter wave antenna and roof mounted magnetic base GPS unit was also given special attention with a liberal application of "racing tape".

Unfortunately, although the unit was well tested prior to fitting, there was little time between installation and "Go". On the Stages, the car crew wear helmets



Figure 3 - VK7BW with his Icom IC-FR3000 Repeater. Photo Andrew VK7HAW



Figure 4 - Monitoring at Heat 2 Digipeater. Photo Roger VK7ARN

with inbuilt intercom units connected by 'curly cord'. They were plagued by packet squawks!

Ferrite sleeves were not available locally and the guys did a terrific job to put up with it for the two days.

The hill top repeater was a 50 W Icom IC-FR3000, capable of CTCSS driven channel sharing operation. Both voice and APRS packet operated on Rx 147.950

MHz and Tx 146.150 MHz. Voice traffic was allocated CTCSS 151.4 Hz and packet 173.8 Hz to avoid audible interference.

The TinyTrack was configured to give priority to voice traffic by requiring a three second break in carrier modulation before transmitting. Smart beaconing was enabled with a slow speed rate of 10 minutes, to minimise packet transmissions whilst the Zero was waiting at a Start line, rising to

a fast rate of 15 seconds at 70 kph. The TinyTrack configuration is shown in Fig 5.

Back at Rally Command, a GST3 antenna fed a Yaesu FT-5200 dual band radio and a PK-232MBX TNC. UI-View ran on a PC with a flat panel display showing the Special Stages and transport roads.

Given the limited infrastructure and competition for air time, coverage was reasonable. On Heat 2, with the long southern stage remote from the repeater in use, a digipeater was established at the Heat 1 repeater site, transmitting on a separate 144.700 MHz frequency.

Local monitoring showed an almost 100% stage APRS coverage (see Fig 4). After competing with voice traffic, approximately 80% of the telemetry made it though to Command.

The main concern from the start of the project was packet interference to voice traffic. This system configuration had the desired result and it was not an issue during the event, leaving the way open for further developments ready for next year.



Figure 6 - Roger VK7ARN's new mobile tower. He is now working on the Mk II version following an incident at Big W's underground car park. Photo John VK7ZZ

Primary Secondary		<input checked="" type="checkbox"/> Send Altitude <input type="checkbox"/> Alternate Digi Paths <input checked="" type="checkbox"/> Only Send Valid <input type="checkbox"/> Allow TTL Serial <input type="checkbox"/> Invert CD IN <input type="checkbox"/> Timestamp DHM <input type="checkbox"/> No TX on PTT In <input type="checkbox"/> Send NMEA <input type="checkbox"/> Timestamp HMS <span style="float: right;"><input type="checkbox"/> 300 baud</span>	
Callsign: ZERO Digi Path: WIDE3-3 Symbol: >    Table / Overlay: /		MICE Settings <input checked="" type="checkbox"/> Enable    Message: Priority <input type="checkbox"/> Force Printable    Path: Conventional	
Timing Auto TX Delay: 1000 milliseconds Auto Transmit Rate: 10 seconds Manual TX Delay: 1000 milliseconds Manual Transmit Rate: 30 seconds Quiet Time: 2998 milliseconds Calibration: 128		Time Slotting <input type="checkbox"/> Enable    Transmit offset: 15 seconds	
Status Text: de VK7HSE Send every: 10 <input type="checkbox"/> Send Separate		SmartBeaconing <input checked="" type="checkbox"/> Enable    Slow Speed: 3 MPH Min Turn Angle: 25 degrees    Slow Rate: 600 seconds Turn Slope: 255    Fast Speed: 45 MPH Min Turn Time: 3 seconds    Fast Rate: 15 seconds	
Configure COM1    Read Configuration Read Version    Write Configuration		Power Switch <input type="checkbox"/> Enable    Power Switch Time: 3 seconds	
		Tone Test Send 1200 Hz    Send Both    Save Send 2200 Hz    Stop Sending    Load    Exit	

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Figure 5 - TinyTrack Configuration.

# Two Australian ATV records in three days!

Dan Joyce VK2GG

**After starting the gas stove with a spark from jumper leads,.....rain cleared enough for P3/P4 pictures to be received over the 194 km path,**

The saga had a number of different but related facets!

After a gestation period of the usual nine months, the plan was completed, and the journey began. It was a complicated plan, involving the record attempt on a weekend, followed by a journey by all concerned to Lismore to take part in the ARISS contact by the Tevan-Tintenbar School.

The ARISS schedule eventually presented by NASA made the details of the plan very tight indeed! However, we proceeded, intending to utilise the week between the record attempt and the ISS schedule for surveying of future ATV sites.

Jack VK2TRF had taken possession of some WR-90 waveguides with flanges that very week, so Dan VK2GG took out his hack saws and files, and had a penny feed ready to go in less than half an hour - with a genuine Australian penny!

After pizzas and a bottle of wine, followed by an early night, Jack and Dan travelled north to Dorriggo with the not-very-promising weather forecast of rain for the whole weekend.

The weather in Dorriggo was cold, with occasional showers, but the pub provided a ham-friendly motel room, albeit basic. The meals and other consumables provided by the pub were also quite acceptable!

The first day of the record attempt was windy and wet. The day began quite early, with Jack adjusting the Terlin Outbacker for 80 m, for the "Stone the Crows" net on 3.588 kHz at 6.00 am. We were at a very quiet HF location, and finally managed to be heard by Ted VK2UI at Raymond Terrace, and by Allan VK3ASB who was mobile on his way to an Air Show at Temora.

By about 12.00 pm, VK2TRF and VK2GG had managed to get themselves lost in an (absent) farmer's paddock looking for a site near Ebor, and were at least an hour from the scheduled ATV



Photo 1 - Garry VK2UNI with 10 GHz dishes.

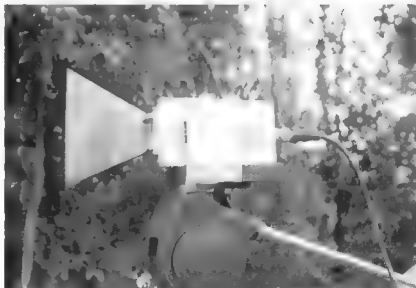


Photo 2 - Jack VK2TRF's receiving 10 GHz horn.

spot. Of course, we had the GPS and trusty laptop displaying moving map!

Finally, nearly an hour later, we were able to erect a serviceable shelter at the lookout near Ebor, west of Dorriggo, under which dishes were set up for both 2.4

GHz and 10 GHz. We then settled down to await Nick's domestic duties (of soccer, etc) to be completed, and for him to set up the Mt Nardi end of the link.

After starting the gas stove with a spark

from jumper leads, we enjoyed soup, coffee and then heard Nick VK2ZTY SIMPLEX on 70 cm as he set up (195 km away!). This HAD to be a ripper path, and so it was on 2.4 GHz, with lovely P5 pictures from Nick firing through some small sapling trees in the rain!

Note Jack's test card with callsign for ID written by hand on the back window of his Range Rover! 10 GHz was not at all a goer, not surprisingly; obviously 10 GHz does not like rain! The return 2.4 GHz video was also P5, and we achieved the record of 194 km at 3.30 pm. Whew! What a day!

Now came the convoluted part of the programme!

Nick was unavailable for weekday ATV playing, so Jack VK2TRF drove solo to Lismore, as there was better weather being forecast for later in the week. Meanwhile, Dan VK2GG waited in Dorrigo while Garry VK2UNI drove up from Wingham in Dan's truck.

The plan was for a further attempt at 10 GHz on the Monday, from the same location near Ebor. The weather in Dorrigo remained fine and sunny nearly all day, while Dan and Garry waited for Jack to survey a likely spot north of Mr Nardi.

This proved unsuitable, and Jack then proceeded up the slippery slopes of Mt Nardi, near Lismore. Comments such as the melting state of the "Tim Tams", and the impending sunburned state of both

Garry VK2UNI and Dan VK2GG were not greeted with much enthusiasm by Jack VK2TRF! Some people just have no sense of humour!

Luckily, the rain cleared enough for P3/P4 pictures to be received over the 194 km path, with a small horn at Jack's end, and a combination of 60 cm and 1.2 m dishes at Dan's end. What a thrill! 200 mW over nearly 200 km! Imagine what we can achieve with dishes at each end! Congratulations and thanks to Jack VK2TRF, Nick VK2ZTY, and Garry VK2UNI.

#### Equipment details:

##### 2.4 GHz:

G1MFG exciters with ex-commercial 30 W PAs at both ends; 24db Gridpack antennas; and G1MFG receivers with home-brewed signal strength meters.

##### 10 GHz:

G1MFG 2400 MHz exciters with Khune MKU 10X (4 x multipliers); G1MFG 23 cm receivers with 9 GHz LO LNBs; MA-86551 X-Band Horn with 17dB gain; Kuhne 1 W amp at one end; and 60 cm/1.2 m parabolic dishes with penny feed at the other end.

A packet of Tim-Tams (or is that a carton?) is on offer to anyone who can point out elevated sites which exceed 200 km apart, and which UKW Tools say is LOS.

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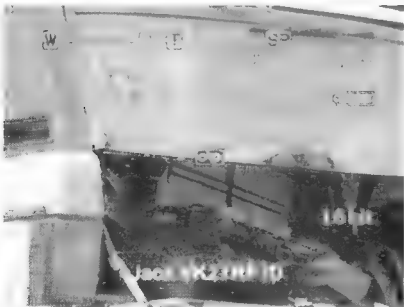


Photo 3 - Jack VK2TRF's test card with callsign for ID written by hand on the back window of his Range Rover!

# A Vertical Whip for a Caravan

Ian Cowan VK1BG

On a previous occasion, I have written about the portable G5RV antenna that I have carried around the country for HF operation from my caravan. Well, the trusty G5RV has now been pensioned off and in its place I use the four metre base loaded whip that is the subject of this article.

The G5RV was a very good antenna for general field work, but it did depend on there being some conveniently placed trees around for supports, and it was sometimes a bit messy to put up. These factors make it less than ideal for a one-night-stand. To simplify matters, I decided to see what I could get out of a simple loaded vertical that could be clipped to the roof of my pop-top van, using the van roof as the ground plane.

There are numerous whips designed for mobile use available commercially and, indeed, I have a set of Hustler whips with loading coils for 80, 40, and 20 metres. These seem to work well when working against the van roof, but the fact that the loading coils become warm after a few minutes of operation shows that the efficiency of antennas such as these could be better. And it is certainly harder to get a

contact with the Hustler than it is with the G5RV. While I was ready to try a vertical in lieu of the G5RV, I did not want to sacrifice too much ERP along the way.

Unfortunately, this is a big ask. There are several factors that are working against efficiency in a short vertical antenna. The first is the very low radiation resistance of such antennas. This represents the radiating component of the antenna, and is the one into which we need to deliver as much transmitter power as possible. Typically, the radiation resistance is below one ohm for short antennas on 80 metres.

The second factor is the loss in matching the radiation resistance to the 50 ohm output of our transceivers. This is done using a loading coil somewhere along the radiator, usually with a few other components as well. Ideally, the effective

resistance of the coil should be small compared with the radiation resistance of the whip, but the ideal is unattainable at or below 80 metres because the coil has to be large and hence effective loss resistances above an ohm are almost inevitable.

The third adverse factor is ground resistance. This, too, is almost inevitably more than one ohm, though my ARRL Antenna Handbook suggests that the effective value of ground resistance falls as the height of the base of the antenna is raised. On my caravan, the antenna base is about three metres above ground, somewhat higher than in most mobiles. There are other lesser losses such as matching network losses also affecting efficiency but these are of less importance than those above. In summary, the unwanted loss resistances can be several times greater than the radiation resistance, especially on 80 metres.

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TEV-4      TEV-3      TEV-3 Warc



Antenna	TEV-4	TEV-3	TEV-3 Warc
FREQUENCY	7.15, 21, 28 MHz	14, 21, 28 MHz	10, 18, 24 MHz
ELEMENT HEIGHT	4090 mm	3800 mm	5025 mm
FEED IMPEDANCE	50 ohm	50 ohm	50 ohm
MAX. RADIAL LENGTH	10.7 metres	5 metres	7.5 metres
SWR	1.5 or less	1.5 or less	1.5 or less
POWER RATING	1 kW	1 kW	1 kW



The upshot of all this, according to the ARRL Handbook, is that the best efficiency I can expect in the 80 metre band is about 15%, and 45% on 40 metres. However, a well designed antenna should be about 8 dB better than an ordinary mobile whip on 80 metres, and this is worth the effort (mind you, it will still be, at best, about 8 dB below the G5RV!). On 40 metres and above, the situation is much better.

## Evolution

My requirement is for an antenna which is quick to erect at a fixed portable location and which can be used on the HF bands between about 3.5 and 21 MHz. A vertical radiator somewhat longer than the usual mobile whip would be desirable. I chose four metres as being reasonable in terms of it being manageable and of being not too sensitive to winds. On a whip this long, centre loading did not seem practical, so I settled on base loading as the best option. The loading coil would have to be of high quality (i.e. have a high Q factor) to minimise losses, and this means large.

Obviously, the 80 metre band would require the greatest base loading inductance to bring the whip to resonance. I consulted an old Basic A program on my PC, and found that the coil would have to be of about 50  $\mu$ H. It so happened that I had a pretty large roller inductor on the shelf. This coil uses a 75 mm ribbed ceramic former. It is wound with 27 turns of 2 mm silver plated wire, with a winding length of about 95 mm. Unfortunately, the total inductance works out to be about 30  $\mu$ H. I determined to use this coil anyway,

and gave it a thorough clean up, and mounted it in an Acrylic box I made for the purpose.

The coil is rotated by means of a shaft which passes through the bottom of the box, and on which I have mounted a mechanical counter to show the position of the pick up on the inductor as the coil is rotated. I think the coil would have a Q (quality factor) better than 400, and this would imply a loss resistance of less than 3 ohms on 80 metres - just acceptable!

I decided to use a shunt capacitor directly across the coil to artificially increase the effective coil inductance to the 50  $\mu$ H required for 80 metres. It might have been possible to install a top hat at the top of the whip to achieve the desired effect, but I ruled this option out on mechanical grounds - ie the whip is too flimsy. Again I consulted the old computer program, and found that a capacitance of about 27 pF placed directly across the inductor would be needed to make it look like 50  $\mu$ H. A high voltage capacitor would be required as the voltage across the coil on transmit could be several kilovolts. Sitting on the same shelf as the roller inductor was a 30 pF wide spaced variable transmitting capacitor, so I decided to use that. This also saved having to fiddle up a switch to disconnect the capacitor on the bands above 80 metres, as the coil can manage alone on these bands.

At this stage I have a four metre whip with a loading network which can resonate the whip on any frequency in the desired range. The next problem to solve is matching to the 50 ohm coax connecting the transceiver to the antenna. Here, my 1990 ARRL Handbook came to

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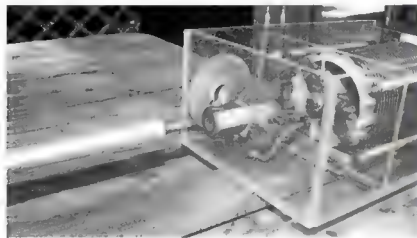


Photo 1 A front on view of the acrylic box, shown lying on a table. The whip connects to the left hand end of the box as depicted.

the rescue. It suggested the use of an L match, which in this case boiled down to using a shunt capacitor across the input coax feedline.

By trial and error techniques I found the required values to be 1600 pF for the 80 metre band, and 400 pF for the 40 and 30 metre bands. For the higher bands above 30 metres, the SWR is well within the matching range of my FT897 transceiver, so no further shunts are necessary. These capacitors use silver mica blocks that I found in my junk box. There is nothing particularly onerous about their working conditions. The voltage across them is only about 50 volts, although the current through them is fairly high. Silver-mica capacitors are a good choice as they have low loss in the HF area.

## Construction

The circuit diagram at Fig 1 shows the electrical layout around the roller inductor. In fact, the circuit is that of a pi coupler. The common return is connected to the caravan roof by means of a hand-made catch which hooks over the hold-down clip on the caravan roof. This quick and simple connection has proved reliable so far, though every now and again I give the contact surfaces a bit of a clean with fine sand paper or steel wool just to be sure. SW1 is used to switch in the required matching capacitor at the input. It is an ordinary miniature toggle switch, single pole, double throw with centre off.

The photographs show aspects of the construction. The whole assembly is built on to a piece of nominal 2 x 1 inch timber about 1.5 metres long, properly painted for weather protection. A piece of 6 mm acrylic with a 13 mm hole in it sits at the top of the timber. This provides lateral support for the whip that would otherwise surely bend at the slightest provocation.

The roller inductor and associated circuits are housed in a box made from 6 mm acrylic sheet. This is a nice material to work and has good RF properties at HF. Joints in the box are made with the appropriate solvent cement which, along with the sheet, is available from plastics retailers. When set, the joints are very strong. The box assembly is designed to be weatherproof and has little effect on the Q of the inductor, wet or dry.

The whip has a 6 mm brass rod driven into it at the bottom, and this connects to the top of the coil box via a brass fitting which was once part of a valve radio tuning drum. The first photo is a front-on

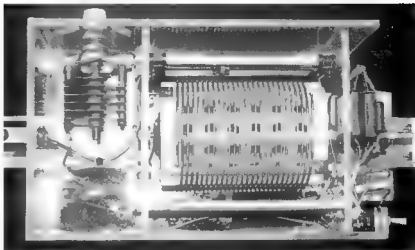


Photo 2 The underside of the box and showing the roller inductor drive shaft as it exits the box, the counter on the shaft, the input connector, and the input matching capacitors with their selector switch. It also shows the ground return wire for connection to the van roof.



Photo 3 The brass fitting on the top of the acrylic box into which the whip is connected. As can be seen, the high voltage components are at the top of the box, and the lower voltage bits are at the bottom.

view of the acrylic box, shown lying on a table. The whip connects to the left hand end of the box as depicted.

The second photo details the underside of the box and shows the roller inductor drive shaft as it exits the box, the counter on the shaft, the input connector, and the input matching capacitors with their selector switch. It also shows the ground return wire for connection to the van roof.

Photo 3 details the brass fitting on the top of the acrylic box into which the

whip is connected. As can be seen, the high voltage components are at the top of the box, and the lower voltage bits are at the bottom.

Photo 4 details the control knob and dial for the HV coil shunt capacitor required for 80 metre operation. Once the correct position for this has been found it can be readily reset on subsequent occasion.

The whip itself is in two sections, joined using a sleeve of aluminium that is permanently secured to the bottom length of tubing using dimples from a centre pop

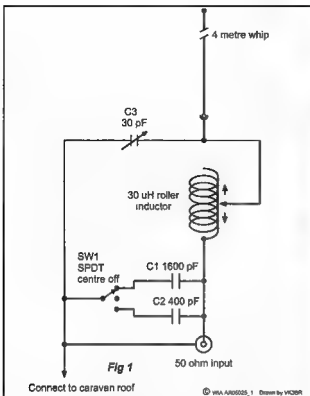


Fig 1 – Schematic of the antenna matching components.

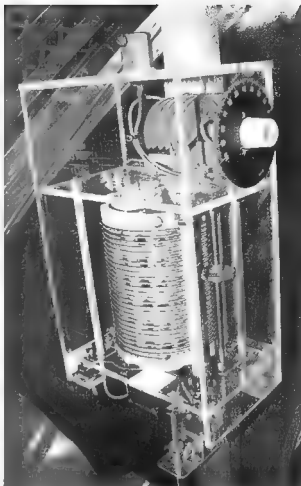


Photo 4 Details of the control knob and dial for the HV coil shunt capacitor which is required for 80 metre operation.

punch. The top section of tube slides into this sleeve, and is secured by a hose clamp that tightens over a longitudinal hacksaw cut in the top of the sleeve.

As the roller inductor assembly is about three metres above ground when the antenna is clipped to the van roof, it has a long drive shaft so it can be easily be rotated from ground level. This drive shaft has a crank handle at the user end. It also drives a mechanical cyclometer counter so the position of the inductor can also be monitored from the ground.

## Tuning

Tuning is very simple when the antenna is assembled and clipped to the caravan. I use an FT897 for HF portable work, and this has a handy 3.5 mm jack into which can be plugged a remote 0-1 milliamp meter. What the meter reads is software selectable, and I have set mine to mimic the S meter on receive, and the SWR indicator on transmit. I have the meter on a cable long enough to allow the meter to be taken outside the van.

The first move is to set C3, the high voltage variable capacitor that shunts the roller inductor. Above 80 metres, this is set to minimum capacity, but the first

time the antenna is used on 80 metres, the position has to be established by trial and error. This does not take long, and is only done once, when the position of the capacitor is noted for future reference.

Having set C3 according to the band in use, the input capacitor is set, also according to band - 1600 pF for 80 metres, 400 pF for 40/30 metres, and zero above that.

Initial tune is accomplished by rotating the inductor for highest noise in the receiver, as shown on the S meter. Then a low-level carrier is keyed on, and fine tuning is set by tweaking the roller inductor a little, one way or the other. SWR can be set by this means to quite low levels on all bands but, as I am a purist, I allow the automatic ATU in the FT897 to clean up any rough edges.

## Performance

I set out to produce a high efficiency portable antenna for my caravan. This goal seems to have been achieved, albeit at the cost of the mechanical complexity

and bulk of the roller inductor I used. On 40 metres and above, the antenna is reasonably efficient, and on 80 metres it is quite OK for local working.

The main drawback is the very narrow bandwidth of the antenna, especially on 80 metres. This is an unfortunate and inevitable consequence of designing a low loss short antenna. The antenna is not as convenient to use as a modern mobile whip with automatic ATU, but this is the price I am prepared to pay in pursuit of efficiency. I believe that my antenna will cut the mustard when most of the more modern automatic types will not. It is certainly not too far behind the trusty G5RV that it replaced and, unlike the G5RV, it can be used on 30 metres!

Finally, the antenna is almost entirely built from junk box components, so it cost almost nothing to build. Viva la junk box!

# A "sewer pipe" balun

Keb Gurr VK5BNG

Over many years in amateur radio, I have used both coaxial cable and open wire line to feed the many antennas in use. Both have their advantages. However, the open line is most suitable to multi-band coverage. Feeding an open wire line into a radio room may be generally achieved without complication, and direct connection of the line to an Antenna Tuning Unit (ATU) can be made.

I once needed to bring such a feedline into a reinforced concrete building, where it was impossible to use open wire line and the use of coaxial cable appeared more appropriate.

An early method to overcome this challenge was to use two short lengths of coaxial cable, with the open wire line terminating on the coaxial cable inner conductors, outside the building, and connected to two coaxial sockets mounted on the ATU inside the building. The ATU was tuned up in the normally accepted method for balanced line, and operated quite efficiently.

When moving to my present home, it appeared that I may need to once again use the above method, due to the house construction. However, my attention was drawn by Phil Williams VK5NN to an article in Radio Communications for August 1992, where the use of one coaxial cable and a simple 4 to 1 balun

achieved the same purpose. The balun was wound on a piece of PVC sewer pipe, as may be obtained from a building site (with permission). This 4:1 balun was manufactured, tried on all bands from 3.5 MHz to 28 MHz, and loaned to friends and members of the Adelaide Hills Amateur Radio Society, with remarkable success.

The balun was also tested at full amateur power levels on these bands, without signs of overheating. The unit was mainly mounted on a fascia board or other fixture, outside the building, with a short length of coaxial cable (RG213) connecting to an ATU inside. The ATU in most cases was a standard "Z" Match.

While the balun has been used successfully on 1.8 MHz, no definitive tests have been conducted. Other methods of coupling may be more desirable on this band.

## Theory of operation

The impedance seen at the bottom of the feed-line, when using a centre-fed multi-band antenna (centre fed Zepp), may vary from very low to perhaps a few thousand ohms. The generally accepted output impedance from an ATU is 50 ohms, and as few ATUs are capable of performing over such a large range, it becomes convenient to reduce the upper

impedance requirement to a lower value. This can be done with a 4 to 1 impedance transformer. The coaxial cable may be either 50  $\Omega$  or 75  $\Omega$ , as its impedance is not important, but both windings must be the same.

The balun thus is performing a dual purpose - reducing the impedance range and also providing the required balance to unbalance function.

It is the purpose of this article to describe the use of the balun; the detailed theory of operation may be found in Reference 1 listed below.

## Circuit diagram

Fig 1 is a simple drawing of the balun. It consists of two, eight turn windings of coaxial cable laid up in opposite directions of lay. See Fig 2 of the complete balun for fine detail.

## Parts required.

- 190 mm long x 110 mm OD (100 mm ID) PVC sewer pipe former.
- 2 only 3.3 m lengths of 50  $\Omega$  or 75  $\Omega$  small diameter coaxial cable (typically RG58CU or UR67). Ensure the screen wire is copper, not aluminium.
- 1 only SO239 socket
- 2 only terminals for connection of the open wire feed-line.
- Quantity of fixing screws, instant glue, solder and suitable iron.
- 1 only 150 mm length of approximately 1.5 mm diameter bare/tinned copper wire.

## Construction

First determine the centre point on the former, drill holes and mount the coaxial socket, including washers and copper bonding wire as shown in Fig 3. Drill and fit the two line terminals, 15 mm apart, near the socket but on the other side of the socket to the two cable holes. Refer to Fig 2.

Near the coaxial cable socket, and in line with the outer edges, drill 2 x 5 mm diameter holes, approximately 30 mm apart.

Drill another two holes, in line, a further 50 mm away to allow for the eight turns of cable.

Insert one end of each of the two

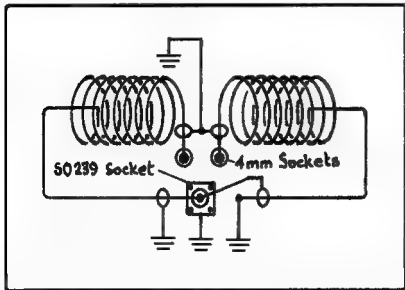


Fig 1 - Circuit of the balun.

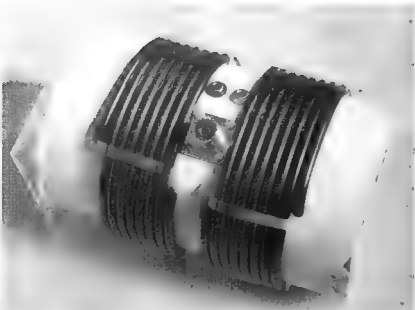


Fig 2 - External view of the balun.

coaxial cables through the centre two holes. Terminate the inners to the two open wire line terminals, and the outers (braid) to the copper wire bonding ring around the socket.

Tightly wind eight turns of two coaxial cables, one in each outwards direction, and pull the two loose ends tightly through the end holes. These windings are now in opposite lay on the former.

Next while the windings are held secure, fix them with instant glue so they will not spring apart when the terminations on the socket are made.

The two outer ends of coaxial cable may now be terminated. Note from Fig 3, that the centre conductor of one cable end is terminated on the centre spigot of the coaxial connector, and the braid to the earthing ring. The centre conductor of the other cable end, is connected to the earthing ring, and the braid to the centre spigot.

The balun is now complete.

Note that Fig 2 shows the balun with the ends sealed to keep unwanted life from making it their home.

## Mounting

One method that may be used is to screw or bolt the balun under the eaves of a house to give some water proofing, holding the former away from metal, etc with a couple of cotton reels. It is really your choice how to mount it, as long as the feed-line is clear from conducting material, and there is a drip loop to keep water away from the balun and coaxial cable, and prevent entry of the water to the building.

There is no problem mounting additional terminals on the end surface of the former, in parallel with the original, to allow the use of much wider spaced lines. The balun described was used with 300 ohm open wire line when constructed.

## References

1. Radiocommunication August 1992, Page 51 - RSGB
2. ARRL Antenna Handbook any edition, 1942 to 2006  
Acknowledgements  
1. Photography by Lyle Whyatt VK5ZNB.
2. Initial tests by VK5NN Phil Williams.
3. Adelaide Hills Amateur Radio Society for extensive testing of demonstration models.
4. Editing suggestions by Lyle Whyatt VK5ZNB and Jim Tregellas VK5JST.



Fig 3 - Internal connections to the balun.

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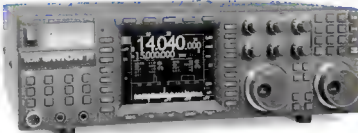
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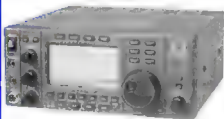
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## VK2

Tim VK2ZTM.

### Clubs

On Saturday 7th October, the **Oxley Region ARC** celebrated the 35th anniversary of their formation - in 1971. Like many clubs, Oxley Region was formed so that a repeater could be developed. Club members and invited guests assembled about noon for a chin wag and light lunch. A meeting was then convened with Vice President Bruce VK2HOT in the chair. Many apologies were noted, including that of President Alan VK2GD. Three surviving Foundation members were present and introduced to the gathering. They were Henry VK2ZHE, Arthur VK2ATM and Graeme VK2ZIS. The drawing of 'lucky numbers' then followed, until everybody in attendance had received a gift. Time was then devoted to conduct the monthly meeting and the formal event concluded with the cutting of the anniversary cake.

The WIA was represented by Director Phil VK2DKN and ARNSW by Councillor Brian VK2WBK. Many club members had worked behind the scene to prepare

for the day. Wendy, XYL of VK2ATM, produced a vast range of food for both the lunch and afternoon tea and in her spare time had assembled many display boards of photos and memorabilia about the Club over its 35 years.

The Oxley Region club has a regular newsletter - known as *Oxtales* - which was started in early 1980 by the late Lester VK2BFP. With a few other editors over the years, it has been produced for the last 16 years by Trevor VK2TT. The September 2006 issue was number 99 and all have now been reproduced in a PDF format on a CD, available from the club. Copies are \$5 collect or \$7 posted. Write to the Oxley Region Secretary at P.O. Box 712, Port Macquarie 2444.

Oxley Region hosts two repeater sites with 2 and 70 voice systems serving Port Macquarie and the Hastings Valley. Check out 6700, 7000 and 8525. The monthly meeting is on the first Saturday afternoon of the month, with informal gatherings on the second and fourth Friday evenings. If you are visiting the area there is a net on 6700, Sunday at 0830 and Wednesday at 1900 hours. They have been active in Foundation Licence assessment. A recent successful club member was Des from Lord Howe Island, who is now providing signals from the Island, as time permits. Look out for VK9FLHI. Several others have already upgraded from the Foundation.

### ARNSW

At the end of this month, Sunday the 26th, will be the final Trash and Treasure and Home Brew gathering for the year. Details will be in VK2WI news. With summer almost upon us, don't forget a hat and sunscreen. By early next year it is hoped that the new shed, with plenty of covered space, will provide shelter from the elements. The September event had a good range of ex-commercial equipment which had been made available by communication company Vertel. It included rack cabinets, cavity filters, transmitters and receivers and other items which form a communication facility. One station wagon was seen leaving with three cabinets, one inside and two on the roof

racks and all available space was filled with other purchases. Some equipment remained and will be available this month. Check out the ARNSW tender section on their web site [www.arnsw.org.au](http://www.arnsw.org.au).

As these notes were being prepared, the status of the proposed club gathering was not known, as many clubs were still to reply. Keep an ear on VK2WI news or check the web site. As indicated in previous notes, there has been a change of venue for ARNSW exams. Currently it is in Baulkham Hills. There is still plenty of interest and if you know of anyone wanting to undertake any of the exams, have them contact the office by telephone 02 9689 2417, FAX 02 9633 1525, email [vk2wi@ozemail.com.au](mailto:vk2wi@ozemail.com.au) or post to P.O. Box 9432, Harris Park, NSW 2150. Get an application form from the ARNSW web site, or the office.

### VK2WI

A new transceiver is being prepared for 30 metres on 10.125 MHz. The old equipment has provided over 20 years of faithful service but has grown tired in recent times. It is time to move forward a couple of generations in transceivers. There will be no transmission on 30 for a few weeks. During this period of low sunspots, 80 metres continues to be the mainstay of the State-wide HF coverage. 40 is being patchy in the morning and has difficult adjacent channel signals in the evening. VK2WI will most likely adopt the usual practice over the holiday period of a morning-only session. Further details will be provided next month. Good reports are still coming in about the 3699 VK2WI Morse transmission and the interest many show in its operation. If you are still looking to learn the Code, don't forget the VK2BWI operator sessions a couple of nights a week on 3550 at 8 pm. If you like sending code - why not join the team and help spread the load. Contact Coordinator Ross VK2ER. Mentioned last month was that the Central Coast 70 cm Morse transmission was moving. It is now on the new channel of 439.725 MHz which doubles as a voice mode repeater by the addition of 123 Hz on the 434.725 input.

73 - Tim VK2ZTM.

## Coffs Harbour and District Amateur Radio Field Day

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## VK3

### Amateur Radio Victoria News

Website: [www.amateurradio.com.au](http://www.amateurradio.com.au) Email: [arv@amateurradio.com.au](mailto:arv@amateurradio.com.au)  
Jim Linton VK3PC

#### Promoting amateur radio

A series of newspaper articles initiated by Amateur Radio Victoria has been published, giving the hobby and the Foundation Licence positive publicity.

It was felt important to not only publicise the new attractiveness of amateur radio, but also raise public awareness and understanding of the activity.

The first article appeared in The Senior (Victoria) newspaper to target those already retired and those intending to retire in coming years.

Featured in the article are Rob Carmichael VK3DTR and Gary Thompson VK3FGAZ. It discusses how Rob, 87, was bitten by the wireless bug when aged five and his father put a set of headphones on him to listen for a broadcast from 3LO.

Gary is reported as taking up amateur radio in preparation for his intended retirement in a few years; He describes it as a really friendly hobby.

About five Melbourne weekly suburban newspapers have also run stories. The first

was the Hume Star that reported on the activities of Graeme Koch VK3FTTG.

Then followed the Northcote, Preston and Melbourne Leader newspapers with a half page story on Mick Ampt VK3CH and his daughters Janice VK3FIRE, 10, and Michelle VK3FAME, 7.

Michael Boudreaux VK3XZ was next in the Brimbank Leader. These stories resulted from a campaign that enlisted volunteer Amateur Radio Victoria members who became 'ambassadors for amateur radio'.

There are about ten other willing 'ambassadors', including, not surprisingly some enthusiastic Foundation licensees. However, the suburban newspapers have generally been slow in responding to the reporting and pictorial opportunities.

Efforts are continuing to get them interested. 'Ambassadors' in some municipalities including Glen Eira, Knox, Maroondah, Kingston and Stonnington are still needed. Volunteers from those areas willing to be interviewed are invited

and photographs would be welcome. The promotional campaign may spread to regional newspapers if there is support for it.

The published stories can be found on the Members Only section of our website.

#### Schools radio project

Students at Grovedale Secondary College near Geelong are receiving Foundation Licence training, thanks to John Collins VK3TKH.

To support that activity, Amateur Radio Victoria has donated ten Foundation Licence Manuals as part of its 'getting amateur radio in schools' project.

Under that scheme, any Amateur Radio Victoria member who confirms that they are running Foundation Licence training and assessments at a school, will receive up to ten handbooks free.

#### Cordless phone pulled

The ACMA has acted very quickly to stop the use of a long-range cordless telephone operating on the 2-metre band.

The presence of the device was initially detected by a nearby radio amateur who then asked Amateur Radio Victoria to advise the ACMA.

This was the latest incident with imported cordless phones that illegally operate on various VHF frequencies including the exclusive amateur 2-metre band. Earlier this year, another cordless phone caused severe interference to the Kinglake repeater VK3RNM.

#### Membership renewals sent

All members whose membership renewals for 2006-08 which were due should have now received a renewal notice. The membership fees are unchanged at \$30 (radio amateur and unlicensed radio hobbyist) and \$25 (full time student or pensioner).



Rob Carmichael VK3DTR and Gary Thompson VK3FGAZ chat on air, as featured in *The Senior* (Victoria) newspaper

# News from...

## VK3 continued

New members are always welcome and a membership application form is available on the Amateur Radio Victoria website or can be provided on request.

Thanks to Rob Hailey VK3NC, who updated the database software that now fully accommodates the 7-character Foundation Licence callsigns, plus brings in other refinements, and Peter Mill VK3APO, who burnt the midnight oil checking the records and filling envelopes.

## New Councillor

This month we welcome Terry Murphy VK3UP, who joins the Amateur Radio Victoria Council for 2006-09.

He has been warmly welcomed by the existing councillors, Jim Linton VK3PC, Barry Robertson VK3JBR, Ross Pittard VK3FCE, Peter Mill VK3APO and Keith Proctor VK3FT.

## VK5

## Adelaide Hills Amateur Radio Society

Graham VK4ZFZ had much of interest to share with the nearly 60 members who gathered at the new venue in September.

Graham spoke about some of the new (and not so new) developments in the world of amplifying, in particular AM, both normal and digitised, amplifying.

The topic struck a chord with many members who had started their interest in amateur radio through an interest in building and fixing amplifiers, however, there are many new applications of old ideas in use today.

Do you remember the technique called ampliphase? This is one of the old/new principles in use today in modern amplifiers

At the end of the talk, Graham illustrated

the band-space savings that can be made by digitising, not only FM commercial broadcast stations, but doing the same to the AM broadcast signals, too. There is room for ten times as many stations within the normal broadcast bands than we have now.

Whether we need or want more, or whether we would or could listen to more radio stations was not the question addressed!! But we were left with the feeling that there are likely to be changes within the next few years, though probably it is the more populated countries which will see these changes first and most.

By the time you see this column, the AHARS "Buy and Sell" will be over but I hope everyone went away with lots

## Foundation Licence training and assessments

Upcoming dates: 11-12 November and 9-10 December. Know someone who could be interested? Contact Barry Robinson VK3JBR 0428 516 001 or arv@amateurradio.com.au

Christine Taylor VK5CTY

of treasures and maybe some bargains. Come again next year!

The AHARS committee is working to encourage the new licensees to join AHARS and also to join the WIA.

The committee is offering to refund the examination fee for any member who upgrades to the next level. (They have already refunded the examination fee for the members who passed at the previous examination. This is a new offer.)

In addition to the examination encouragement, the committee would like to see more members also members of the WIA. To help this happen, the committee is offering to subsidise the first year's fee by 50% for any club member who joins the WIA for the first time.

## The Riverland Radio Club welcomes UK visitor

The Riverland Radio Club members welcomed Norman Williams M0CRM/VK5ATJ to the Riverland. Norman spent a week in the area enjoying some

of the local attractions including the Loxton Historical Village guided by Robert VK5TRM. Norman was also treated to a tour of the Murtho and Renmark area by Doug VK5GA.

Norman lives in Whitehaven, a port on the West coast, which is in the North West of England, about 60 km from the Scottish border. A retired civil engineer married to a very understanding wife who encourages him to travel.

Norman M0CRM/VK5ATJ attended the Riverland Radio Club's monthly meeting on Monday the 9th October and addressed the meeting on the Foundation Licence in the UK.

Norman pointed out that although the Morse code is no longer a requirement for the Foundation Licence in the UK, candidates are still required to know the principles of Morse code. He also made reference to the many callsigns used by amateurs in the UK.

Norman leads a very busy life back in the UK, being active on HF and

VHF, static and mobile, and often uses Echolink.

He founded the Whitehaven ARC and the Workington ARC and put 60 plus through the Foundation course with several carrying on to take the Intermediate licence.

Norman M0CRM is Deputy Chairman of the RSGB (Radio Society of Great Britain) Planning Advisory Committee and Deputy RSGB Regional Manager responsible for District 31, Cumbria and part of North Lancashire. As he pointed out, it sounds grand but it is all voluntary and unpaid.

The club held a BBQ at the Berri Caravan Park prior to Norman returning to Adelaide.

Doug Tamblin VK5GA  
Riverland Radio Club



Norman M0CRM at  
Heading's Cliff

## VK7

Justin Giles-Clark, VK7TW  
Email: vk7tw@wia.org.au  
Regional Web Site: reast.asn.au

### Great Tassie Hamfest 2006

Next month, December 2, will see the great Tassie Hamfest 2006 in the Miena Community Hall in the Central Highlands. This event will again be proudly hosted by the Central Highlands Club of Tasmania and all are welcome. Many suppliers will be attending including Benelec, Icom, TTS Systems plus many more. Entry fee is \$5.00 per person or family and will include free tea & coffee. Food will also be available at very reasonable prices. Starting time is 10.00 am. There will also be sales of pre-loved gear and a lucky door prize along with other prizes throughout the day. See you there.

### BPL - RF Susceptibility Testing

With the help of Harvey VK7HK, tests have been undertaken in the Mt Nelson BPL trial area to research if it is possible for HF amateur radio to co-exist with the BPL system being trialled in VK7. Observations of the latency time, signal level and link LEDs on the BPL modem were recorded with and without RF signal being present. The key conclusion is that the BPL system observed is severely disrupted by ingress of low intensity (2-5 watts, estimated <1 W EIRP) RF energy from nearby radio transmitters. The report can be viewed at <http://reast.asn.au/vk7bplwatch.php>.

### NW Tasmanian Amateur Radio Interest Group

The VK7RMD 2 m repeater on Mt. Duncan has been repaired thanks to Peter VK2IY and Winston VK7EM who scaled the mountain and tower. The new antenna is a Moonraker Type MD/HS with gain in the order of 2.2 dBi and its sturdy construction should be able to withstand the rigours of this location. Tony VK7AX has installed a SSTV Live Web Cam that is available via the internet and also puts the picture out on 147.4 MHz. Take a look at <http://www.vk7ax.tassie.net.au/sstv/>.

### Northern Tasmania Amateur Radio Club

Wednesday 13 September was a NTARC dinner meeting with guest speaker David Murray from CentreLink. David gave us a great presentation that cleared up a few grey retirement areas. Repeater VK7RAB on Mt Arthur has been repaired thanks to VK7YBG, VK7ZJA, VK7HAM and VK7NKT.

### Radio and Electronics Association of Southern Tasmania

Sunday September 24 saw torrential rain but this did not deter about 20 people in 7 teams compete for the running of the great Foxhunt in the Southern Forests around Nugent. Congratulations to Murray VK7ZMS who won the Jing Tong 2 m hand held that was donated by Ken VK7DY and Wendy VK7FWJS.

The Wednesday night ATV Experimenters nights have been great fun

with a variety of ATV programs broadcast and many ATV viewers providing reports from all over Hobart. If you would like to become a part of the ATV group come up to or point your antenna toward the Queen's Domain and tune your TV to 444.25 MHz (low UHF) and give us a report on VK7RAD/RHT.

We also congratulate our latest five Foundation licensees - Gordon VK7FGFH, Robert VK7FRTH, Derek VK7FINE, Alan VK7FWAG Alan and Robbie VK7FROB. The REAST October meeting saw about 15 people hear a very interesting and helpful talk by Dr. Michael Boxhall on a broad range of men's health issues. Prostate symptoms and treatments, erection problems and, yes, there were the obligatory questions about Viagra! Dr. Michael then covered bowel cancer, kidney stones, diabetes and finished off with osteoporosis and joint problems, etc. There were many questions asked and myths dispelled; thanks to Michael for giving us the time. **af**



Intrepid (& wet) fox hunters await the final scoring!

Healesville Amateur Radio Group Inc.  
C/o P.O. Box 346, Healesville, Vic, 3777



Sunday 25th February, 2007  
10am to 2pm

For booking of trestles  
and further information  
Gavin VK3TLN 5968 8482  
Steve VK3TSR 0418 103 487  
email: [hamfest@harg.org.au](mailto:hamfest@harg.org.au)  
**Healesville Memorial Hall**  
Marcondah Highway, Healesville  
website: [www.harg.org.au](http://www.harg.org.au)

## ALARA Contest – WOW!

This year's ALARA Contest was one of the best ever. Thank you to everyone who participated. Our Contest Manager, Marilyn VK3DMS, was thrilled with the total number of logs submitted, the high scores and the number of F call licensees who enjoyed the experience of contesting, perhaps for the first time. Propagation was kinder to us this year than it has been for the last couple of years, too, which was a help.

Congratulations to Diane VK4KYL. Not only was her score very high, in fact one of the highest ever, but she was closely followed by Catherine VK4FRED with another very high score.

Because this is the first year Foundation licences have existed, the committee decided to award a one-off special award to the top F call scorer, who is, of course, Catherine VK4FRED.

The full results are printed elsewhere in this issue of AR.

## An ALARA Plaque awarded for service

At varying intervals, the committee of ALARA gives a plaque to a member who has been an active contributor to the association. Such a plaque was sent to Judy VK3AGC recently. Judy served on the committee for many years and was a regular on the Monday Night Nets.

She was President of ALARA up to and during the ALARAMEET in Brisbane, and in many ways has helped to make ALARA work as well as it does.

Plaques like this are given only after unanimous endorsement by postal votes of all the members of the current committee.

Unfortunately, due to geographical difficulties, we had to send the plaque to Judy rather than present it to her at a public function, but we hope it has pride of place in her home now.

Congratulations, Judy.

## Monday Night Nets

It has been great to have more and more F call YLs joining the Monday night Nets. VK4FGAY is becoming a regular, although she cannot always hear us from Bundaberg, and Pam VK4FABB from

the Gold Coast has joined us from time to time. Catherine VK4FRED and Michelle VK3FEAT are often heard.

Perhaps the best evening recently was when we had three F calls, five or six regular full calls and two YLs calling in mobile. Leslie VK5HLS was mobile in VK2, while Jeanne VK5JQ was calling in from VK6. What is more, they could all be heard by someone who was able to relay their information.

For those of you who have not previously called into a Monday Net, look for us on 3,580 +/- 5 kHz at 1030 Zulu. We usually manage to squeeze in there, though the band is much busier than it used to be.

As soon as daylight saving comes in, the time will change to 1000 Zulu, so it may not be until close to the end of the net that the VK4 stations will be able to hear or be heard.

The conversations are always varied apart from usually starting with a weather report from around Australia. It seems that someone always has a special tale to tell which sparks other stories of similar experiences. We know there are quite a few regular "listeners-in" but that is quite OK.

When there is a station from a different state, it may help you to gain your ALARA Award. We are always happy to wait till the end of the Net to give you a formal QSO if it will help. Just call in and ask.

## Have you heard Andaman Island recently?

(This item taken from BYLARA magazine, written by Babs, translated by Christine GM4YMM)

We will all remember with pride the amazing job the DXpedition group led by Bharathi VU2RBI did in the aftermath of the tsunami in December 2004. As a consequence of that effort, the NIAR (National Institute for Amateur Radio) issued a general invitation for a Hamfest on Andaman Island in June this year.

If we also remember that the first DXpedition, which ended so dramatically, was the first one allowed on those islands for many, many years, this was a special invitation. It recognises the assistance

given by worldwide amateurs during that terrible time. We can be proud of our hobby, indeed.

Again, Bharathi was the leader of the DXpedition but she was not the only YL involved this time.

Babs DL7AFS, Claudia K4LEO, Mio JR3MYF (also an ALARA member), and Jeanie WA6UVF were among the 50 Indian and 25 International amateurs on the islands for the Hamfest.

If you made contact during the Hamfest, we can be sure you will treasure the QSL card. Unfortunately the DX YLs were not among the contacts except for a few, but it is great that so many were able to be part of the DXpedition.

## Special award for F calls

The information is not exact but the rumour is that VK3 is running a special award called WAFL (waffle!) aimed at the F calls. Listen out for it; I'm sure it will be interesting for all concerned.

## JOTA

As usual, there will be many young voices heard over the weekend of 21-22 October. Do help them and help to encourage more young people into our great hobby.

If there are YLs out there assisting at a JOTA station, please let Dot VK2DB and/or me VK5CTY know so we can tell everyone else about it. Photos are welcome, too.

We can't know if you don't tell us.

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## AMSAT

Bill Magnussen VK3JT

### SSETI GTO satellite project

The SSETI GTO satellite project is still on track for a launch from Kourou in November 2008.

The planned AMSAT-UK U/S linear transponder is a critical part of the project. The transponder is expected to have: 50 kHz bandwidth, 10 watts of RF output, selectable DSP/SDX and analogue signal paths, a 400 bps beacon and linear polarised antennas with unity gain.

The satellite may not have good, long term, attitude control therefore the antennas are being designed to work well even if the satellite is tumbling. The link budget may not be as good as AO-40 was nor as P3E will be and it is anticipated that circular polarisation and full tracking of ground station antennas will be needed.

Before the system is operated as an

amateur transponder, it will be used as the initial main communications package for the reception of telecommands to the satellite and for the transmission of telemetry and mission data from the satellite. The U/S transponder is therefore a critical part of the whole project. The Preliminary Design Review will be completed during next month and an engineering model of the satellite should be under construction early next year. This process should be visible using the same webcam system as the SSETI Express construction. The website <http://www.sseti.net/> has lots of info about the SSETI program. Click on "missions" and ESEO for more details about their plans for their GTO satellite. AMSAT-UK is again to be congratulated on another joint engineering project of great potential to satellite users around the world.

This information was provided by Graham G3VZV via the AMSAT-BB.

### The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. Contact Graham if you wish to be placed on a mailing list for breaking news and net reminders. As a forum for members AMSAT-VK operates two monthly nets.

### AMSAT-Australia Echolink Net

The "Echolink" net meets on the second Sunday of each month. Anyone with an interest in Amateur Radio Satellites is welcome to join the net. Graham VK5AGR acts as net controller. The net starts at 0500UTC during summer time periods and 0600UTC during winter standard time periods. Connect to the AMSAT conference server on Echolink a few minutes before these times.

### AMSAT-Australia HF net

The HF net meets informally on the second Sunday of each month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000 UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900 UTC. Start listening 15 minutes before these times. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,  
9 Homer Rd,  
Clarence Park, SA. 5034  
Graham's e-mail address is:  
[vk5agr@amsat.org](mailto:vk5agr@amsat.org)

### Potentially bad news regarding PoSAT.

Martin Sweeting G3YJO posted the following to the AMSAT News Service recently. Bad news for those anticipating the return of PoSAT to amateur service now that its commercial job is done.

"Following the recent joint agreement of Consorcio SAT, the owners of PoSAT (PO28 or 1993-061D) which was launched on the Ariane V59 from Kourou on the 26th September 1993, work has been progressing at SSTL and the Surrey Space Centre to switch transponder frequencies to the amateur satellite service to serve as a voice FM transponder for use by all radio amateurs worldwide. Unfortunately, recent investigations now indicate that the PoSAT on-board NiCd batteries are showing the effects of 12 years in orbit and the approximately 100,000 charge/discharge cycles to which they have subjected and are no longer holding sufficient charge to operate the downlinks. This may mean that, sadly after all, it will not be possible for the satellite to be made available for amateur use. We fully understand the benefits that PO-28 would offer radio amateurs and work is continuing at Surrey to see if there is any way to revive this 'old lady'. AMSAT-UK will provide updates when further information becomes available".

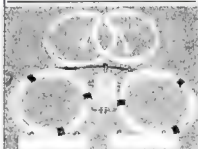
## Rippletech Electronics

### HIGH PASS FILTERS FOR TVI PROBLEMS

Most TVI problems are due to the inability of the TV set to reject strong out-of-band signals - i.e. those from a local HF transmitter. Rippletech High Pass Filters are designed to reject all HF signals, not merely optimised to reject CB. The HPF-50/55 has a cut-off frequency of 60 MHz and better than 55dB of attenuation on 10m and at least 80dB of attenuation on 80m.



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TZ-5LH	160m Sloper (its a suburban unit)	\$ 110.00
TZ-D-4080	40m/80m Trapped Vire Dipole	\$ 176.00
TZ-V-3	10/15/20m Trapped Vertical	\$ 189.00
TZ-V-4	10/15/20/40m Trapped Vertical	\$ 289.00
TZ-V-3L	20/30/40m Trapped Vertical (NEW)	\$ 220.00
TZ-V-3w	12/17/30m Trapped Vertical	\$ 199.00
TZ-V-3a	12/17/40m Trapped Vertical	\$ 209.00
	Radial kits (1 radial per band)	\$ 33.00
TZ-RD-1	10/15/20m Trapped Rotary Dipole	\$ 279.00
TZ-RD-3w	12/17/30m Trapped Rotary Dipole	\$ 289.00
TZ-RD-3a	12/17/40m Trapped Rotary Dipole	\$ 309.00
TZ-RD-40	17/40m or 20/40m Rotary Dipole	\$ 289.00
TZ-1000R	FT 1000mp remote controller	\$ 55.00
HPF-55/5K	High Pass TVI Filter (available now)	\$ 39.00
	Mobile base & 2 bracket combo	\$ 11.00



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**Still nothing from Oscar-11**  
Clive G3CWW again reports that nothing has been heard of Oscar-11 for yet another month. We may have heard the last of this old timer. UoSat-Oscar-11 or UO-11 is a veteran of an earlier glorious period of AMSAT activity when the collection, decoding and correlation of engineering data from the Oscars reigned supreme.

It was built at the University of Surrey in England and launched on March-1 1984. It was the first Oscar to demonstrate the feasibility of digital store and forward techniques. A veritable army of electronics and engineering teachers around the world made UO-11 part of their lab classes. I even managed to spur interest by the mathematics staff at school and UO-11 was woven into our school senior curriculum for a number of years. Student prac projects included tracking antennas and recording sessions on the school sports ground and further afield, with many such data collection sessions taking place late at night or early in the morning. These were the days before sound card decoders; you had no alternative but to build your own hardware decoder. Who knows how many G3RUH demodulators were built. AMSAT-VK alone sold dozens of etched circuit boards.

UO-11 was originally a morning satellite, the orbit designed to take it over every part of the earth during morning school classes between 8 am and 11 am. It held this orbit for many years but has long since lost its sun synchronicity. It began to falter a few years ago when the "S" band beacon partially failed but even then it was put to great use by the satellite microwave gang in testing and calibrating their receivers. If we have heard the last of UO-11, as seems likely, it will mean the passing of an era in the educational use of amateur radio satellites. Thank you UoS and thank you UO-11.

## Lots of activity on the ISS

In the last month or two there has been a flurry of ARISS activity. Even the Space visitor Anousheh Ansari has been part of the fun. She has reportedly made many contacts even though her heavy training schedule prevented her from obtaining her own licence prior to departure for the ISS. Many school contacts have been scheduled and a very high success rate has been achieved.

It is particularly pleasing to see the amount of reported 'random' activity from ISS too. Keep your Keps up to

date and keep a listening watch. You never know when you might just hear an Astronaut calling CQ from the ISS.

## "L" and "S" band debate continues.

It is difficult to remember when a topic has created such a furore on the AMSAT-BB. The announcement was made more than a month ago that the "L" band uplink and the "S" band downlink were to be dropped from the design of the new high orbiter "Eagle".

Since that time, a steady stream of questions and objections have been aired on the BB. There have been a number of attempts by design team members to allay the fears but still the questions come. "Eaglepedia" is being regularly updated on this topic on the AMSAT-NA web site. It seems the concern won't go away. Like many others, I was looking forward to using my (now aging) "S" and "L" band gear on Eagle.

It will be useful on P3E, so I'll have the opportunity to blow the cobwebs out when that satellite is launched. Hopefully a lot of others will too. For those with deep concerns my only suggestion is to get into the habit of watching the latest information come to "Eaglepedia".

ar

# Inter-club BBQ strikes gold

A social gathering of radio amateurs in central Victoria resulted in a very enjoyable day with much food for thought in terms of possible future events.

The Central Goldfields, Ballarat and Midland clubs held a barbecue at the Laanecoorie Hall, between Bendigo and Maryborough, on Sunday 8, October.

It attracted 60 people, including four Councillors from Amateur Radio Victoria who had responded to an invitation by the three clubs to join the BBQ.

A topic of discussion, initially among the club presidents, Peter Rafferty VK3CC (Goldfields), Bob Pitcher VK3NBV (BARG) and Mark Harris VK3EME (Midlands) was a possible joint hamfest type activity in the region. This was formally raised when those at the BBQ met for a brief meeting inside the Laanecoorie Hall.

Jim Linton VK3PC, President of Amateur Radio Victoria, told the meeting that the state-wide organisation would aim to provide support and backing for such an event

After the meeting, the club presidents found that there was much enthusiasm for the idea and they will return to their committees with the aim of developing the possibility even further.

Some suggestions on the weekend included using a country racecourse,

making it a two day event and attractive not only to radio amateurs but for those who can come and see what the hobby is about. A lot of work is needed to make what is now a dream, into a reality.

ar



The President's line up - Peter Rafferty VK3CC (Goldfields), Bob Pitcher VK3NBV (BARG), Jim Linton VK3PC (ARV) and Mark Harris VK3EME (Midlands).

## UK

### No licence fee

Latest news about UK Licences & Ofcom:

Of special interest to those that also hold a U.K. licence. The following applies to U.K. residents. The new online lifetime licensing system will be available from 1st Dec 2006 when Ofcom will deliver a simplified service to existing and new licensees, and to allow for a smooth transition of the licensing processes from the Radio Licensing Centre to Ofcom. If you need to renew your U.K. licence or apply for a new licence in September 2006: Contact the RLC as usual at [www.radiolicensingcentre.co.uk](http://www.radiolicensingcentre.co.uk). If you need to renew your licence during October, November or December 2006: you will automatically be sent a new annual licence to temporarily replace your old licence (which you will not have to pay for).

If you have a Direct Debit set up to pay for your licence, this fee will not be collected. Ofcom urge you to cancel any Standing Orders or BACS payment set up to pay for your annual licence. The new annual licence will cover the short period until your new lifetime licence is issued through the post. If a new licence is needed during October or November 2006, you should contact the RLC (see above). You will be sent an annual licence which you will not be required to pay for - this will cover the short period until your new lifetime licence is issued through the post.

From 1 December 2006, free online licences will be available. However, those applying via a paper-based application will be subject to a £20 charge. For more information look at <http://www.ofcom.org.uk/radiocomms/ift/licensing/classes/amateur/>

For FAQ about it all see: <http://www.ofcom.org.uk/radiocomms/ift/licensing/classes/amateur/faq/>

(INARS)

## Saudi Arabia

### Licensing requirements

Not many of us will be seeking a licence from 'HZ', however Peter Saunders VK6APW, is back in Jeddah with civil aviation. Peter explained:

The radio amateur licence in Saudi Arabia involves sitting for a written theory and regulations exam and a practical Morse test. There are two classes of licence. Class 1 (HZ1) is for HF and VHF and class 2 (HZ2) is VHF only. This allows the holder to operate at class level, but not to erect a station or antenna system! For this you require a separate application. Equipment must be certified and the power limit is 200 watts. Linears are not allowed. Peter is active on HF using a TS-50 with the call HZ1PS. More information on licensing can be obtained from [www.citc.gov.sa](http://www.citc.gov.sa).

(VK6APW)

## Space

### ISS and SSTV

Astronauts on the International Space Station can now transmit slow scan TV images of themselves to Radio Amateurs on Earth thanks to the installation of a new software package called SpaceCam1. They can send still or moving images using standard SSTV formats. Transmissions from the International Space Station take place on 145.800 MHz FM. You will need some tracking software to determine when the station's footprint is in your area. Check the web site [www.marex.org](http://www.marex.org).

(RadCom)

## New Zealand

### Repeater fees

Radio Amateurs in New Zealand have rebelled against a plan by the country's regulator, MED, to impose a \$50 annual fee on repeaters and beacons. Members of the NZART unanimously passed a resolution refusing to pay the charges. In New Zealand, the NZART holds the licences for most of the repeaters and beacons they could be faced with a bill for \$16,000 a year. As the frequency planning and disciplines associated with repeaters are determined by the NZART, they are at a loss to understand the charges being forced upon them.

## USA

### Jailed amateur

A former ham will spend the next 7 years in prison. This, after a federal judge

in Los Angeles hands down one of the harshest sentences in history against a convicted radio communications jammer. It happened on Monday, September 18th United States District Judge R. Gary Klausner minced no words when he told Jack Gerritsen (ex KG6IRO) that he would spend the next 84 months confined to a Federal prison. Gerritsen's lawyer appealed to the court to be lenient and give him no more than two years in jail. The Federal Prosecutor had asked the court to impose a harsher 46 month jail term. Before learning his fate, Gerritsen even offered a formal apology to the government, to the FCC, and the Amateur Radio community. However, Gerritsen was a repeat offender who, after previous appearances at court, continued to jam both amateur and commercial radio networks including the police.

(ARNewsline)

## Christmas Island

### US hams to set up Em-Comms system

A pair of United States hams is heading off to Christmas Island on a mission to establish medical emergency communications on that remote island. Making the almost 8000 mile trek are Texas businessman Carlton Smith KE5EUL and 2006 Radio Amateur of the Year Gordon West WB6NOA. West says it's a voyage well worth making:

"We found out from those on the island that they needed eyeglasses. They needed medical supplies, and they needed a lot of medical type equipment for their small hospital and their outlying clinics. As a humanitarian effort, another friend and I are going over there to help them to set up their communications, as well as to add to what medical supplies they already have on hand."

West and Smith will depart on Monday October 2nd and should be on the island by the 3rd in United States time zones. The pair will set up a new non-ham radio, solar powered short range radio communications system to link the atoll's only small hospital to three very remote clinics on the Island. They will also put in a High Frequency SSB system operating from the same hospital to Fanning Atoll and Washington Island. Both are several

hundred miles to the North.

Smith said "Gordon and I are going to install radios - SSB Marine radios - at the very small hospital on Christmas Island and the three outlying medical clinics, as well as in a recently donated ambulance, so that the nurses on this island at the various clinics can communicate with the doctor at the small hospital."

In addition to the radio gear, Smith and West will also be taking with them close to a thousand pounds of medical supplies and reading glasses that will be distributed to the residents. Providing assistance to the residents of Christmas Island has been an ongoing project for Smith. It began after a cruise he was on made an unscheduled stop at the atoll. Smith commented "About two years ago, my wife and I happened to visit Christmas Island and learned that they were very isolated and quite medically needy. Their central government often does not supply them with any medicines. There are 9000 people living on these three isolated islands of Christmas Island,

Fanning Island and Washington Island - all within a couple hundred miles of one another, but these three islands are collectively isolated from the rest of their country. The capital is Tarawa which is over 2000 miles away. So these three islands are very isolated and only visited by a government supply ship once every three or four months."

So Smith decided to get his ham radio licence as a means of assisting in communications to the island group. In doing so, he met West and invited him to join the project. Gordon told Amateur Radio Newsline that this is work he has done before. In fact, it was a part of his life at a very young age:

West: "Well, I grew up with my parents aboard a boat off Mexico long before Mexico even had phone lines to some of the places we went. I am used to working with those in need of supplies and communications. So this is taking me back probably 50 years from when I was working down in Mexico to now be able to work for this country."

While their primary mission is humanitarian work, West and Smith hope to find time to get on the ham bands and hand out some contacts. They will be there for a week and have been given permission to operate T32GW by the Telecommunications Authority of Kiribati. Hams needing a T32 QSL or a contact for the Islands On The Air awards program should keep an ear open for the two operators during evening hours on 14.275.

That's when they will likely be looking for state-side contacts.

West told Newsline that he will also explore the Pacific tropo ducting VHF/UHF paths that were first observed years ago. He will be on 144.170 MHz upper sideband listening for beacon reception of the KH6HME beacon several thousands miles to the North. QSL your contacts with WB6NOA and KE5EUL at their respective callbook address.

(Sept 22 ARNewline™)

at

## Silent Keys

### Ken Assender VK7ASN

It is with sadness that I announce the death of Ken Assender VK7ASN on 10th September 2006.

Ken was a RAAF pilot and was involved with early Australia National Antarctic Research Expeditions (ANARE), now the Antarctic Division at Kingston, in the late 1950s and early 1960s and wintered at Mawson base in 1960.

1960 was also the last year of RAAF operations in Antarctica, due to particularly harsh blizzards in both 1959 and 1960

which destroyed aircraft.

In June 1998, Ken was awarded a medallion for expeditioners whose valuable service had not previously been formally recognized, especially in the early years of ANARE. Ken was president of the Tasmanian branch of the ANARE Club for many years and organized the mid-winter ANARE Club dinners until his death.

Ken even has a glacier named after him

in Antarctica that flows westwards into Spooner Bay, Enderby Land.

Ken was involved with the Royal Yacht Club of Tasmania and Mike VK7FB remembers that for a number of years Ken was associated with the Sydney to Hobart yacht race communications.

In the past he was a regular on the broadcast callbacks until his health deteriorated.

Vale Ken.

submitted by Justin Giles-Clark, VK7TW

### Peter Waterhouse VK3CWP ex VK7ZPW (The Prickley Whisker).

Where does one start?

I have to inform you of the sudden death of a long time friend.

Peter died recently at the young age of 57 in a plane crash on his much loved Flinders Island.

He lived life on the edge and in the fast lane. In earlier times, from racing his speed boat Locomotion to flying his plane VH-DET. I first met Peter as a teenager before the days of repeaters

and transistor two-way radios were in their infancy. Peter did his apprenticeship with Harry VK7AR at Mobile Radios in Devonport then moved to Melbourne where he eventually established his own TV service business in Croydon. During his shortened life, he achieved more than some men would in a lifetime.

Rest in peace, Peter.

From Joe VK7JG ex VK7ZGJ

### Ross Cuttle VK4VL

I wish to advise that Ross Cuttle VK4VL, passed away on 19 July, 2006, aged 88 years.

Ross's first callsign, VK4ZAT, was issued at the end of the war. He subsequently applied for and was granted VK4VL.

He leaves wife Jess VK4VMK, and five sons and their families.

Prior to his passing, he had requested of ACMA that his son Terry VK4CTC, the only one in the family to follow his father into the hobby, be granted his callsign, and this has been effected.

Submitted by Jess Cuttle VK4VMK



The following material has been extracted from The IARU E-letter, Number 1 & 2.

## IARU prepares for next round of ITU Working Party meetings

One of the most important functions of the IARU is to ensure that the amateur and amateur-satellite services are properly represented whenever decisions are made that affect our frequency allocations. The next major international event of this kind is the World Radiocommunication Conference (WRC-07) that will be held in Geneva next October and November.

Delegates do not just show up at a WRC and make up their minds on the spot. Years of preparation are behind every WRC decision. Most of this work is done within the framework of the Working Parties of the ITU Radiocommunication Sector. For example, Working Party 8A is responsible for studies related to the land mobile service (excluding IMT-2000) and to the amateur and amateur-satellite services.

Working Party 8A will meet at ITU Headquarters in Geneva September 6-14. Other Working Party meetings will be taking place in the same general time frame, including 8B (maritime and aeronautical mobile), 9C (fixed service below 30 MHz), and 6E (terrestrial broadcasting). The timing of these meetings is not coincidental. All four of these Working Parties have a stake in WRC-07 Agenda Item 1.13, which deals with spectrum between 4 and 10 MHz. Delegates with an interest in this issue will hold a joint meeting during the week of September 11.

The IARU will be represented at these meetings by Ken Pulfer VE3PU, and Secretary David Sumner K1ZZ. Other amateur service representatives will be present as members of their national delegations.

More information about the ITU Radiocommunication Sector is available on-line at: <http://www.itu.int/ITU-R/>. For information on individual Working Parties, go to "Study Groups" and then to "Structure." Access to some documents is restricted, but there is a wealth of information available to the public.

## IARU resources on-line

Many IARU member-societies maintain excellent Web sites for the benefit of their members, other radio amateurs around the world, and anyone else who is interested in amateur radio. Did you know that each of three IARU regional organizations has its own Web site? They are:

Region 1: <http://www.iaru-r1.org>

Region 2:

<http://www.iaru-regionii.org/>

Region 3: <http://www.jarl.or.jp/iaru-r3>

The IARU Web site is at [www.iaru.org](http://www.iaru.org). We plan significant improvements to this site in the coming months.

## WRC-07 preparations reach important milestone

September 15 was the deadline for the submission of draft text for the Conference Preparatory Meeting (CPM) Report to the 2007 World Radiocommunication Conference (WRC-07). The CPM will take place in Geneva from February 19 to March 2, 2007, to complete a report of several hundred pages concerning the regulatory, technical, operational and procedural matters to be considered at WRC-07, which in turn will be held in Geneva from October 22 to November 16.

Working Parties of the ITU Radiocommunication Sector (ITU-R) have been hard at work drafting the text for which they are responsible. One of the more complex tasks has been the preparation of text for Agenda Item 1.13, concerning spectrum between 4 and 10 MHz, because – as noted in IARU E-Letter Issue 1 – four different Working Parties were responsible for various parts of the task.

The four Working Parties – 6E, 8A, 8B, and 9C – held overlapping meetings in Geneva during the period of September 5-15. This enabled the drafting work to be completed by a joint group chaired by Pekka Lämsman of Finland. IARU

representatives in the joint group were Ken Pulfer VE3PU and David Sumner K1ZZ.

During the meeting of WP 8A, its Working Group 1 chaired by Paul Rinaldo W4RI (representing the ARRL on the US delegation) worked on several matters related to the amateur services. Draft CPM text was completed for Agenda Item 1.15, concerning a possible secondary allocation to the amateur service at 135.7-137.8 kHz. A Draft New Report on the role of the amateur and amateur-satellite services in disaster mitigation and relief was completed, approved by WP 8A and then adopted by Study Group 8 at its meeting September 20-21. Its temporary designation is Report ITU-R M.[AM-DISCO]. Some work also was done on a new ITU Handbook for the amateur services; it is hoped that work on the Handbook can be completed at the next meeting of WP 8A in June 2007.

## IARU participates in ITU Development Sector

Another significant ITU meeting held in September was that of Study Group 2 of the ITU Telecommunication Development Sector (ITU-D). There is ongoing work in ITU-D SG 2 on communications in the event of disasters, including alerting and notification as well as mitigation after the fact. The IARU is recognized as a partner with the ITU in providing disaster communications; for example, see the brochure "Telecommunications Save Lives" at <http://www.itu.int/ITU-D/emergencytelecoms/publications.html>.

IARU Vice President Tim Ellam VE6SH/G4HUA represented the IARU at this year's meeting of SG 2. He notes, "The opportunity to participate in studies relating to disaster communication and to liaise with ITU staff made this a worthwhile meeting to attend."

*Continues next page*

## IARU Region 2 EC visits Buenos Aires

Over the years, the members of the IARU Region 2 Executive Committee have found it useful to hold their annual meetings in different countries in order to see for themselves how amateur radio is faring throughout the Americas. On September 4-5 the Region 2 EC met in Buenos Aires, Argentina and took the opportunity to meet with officials of Radio Club Argentino. The EC heard that problems with the Argentine economy in recent years have affected everyone in the country, but they also saw that enthusiasm among active radio amateurs remains high.

Support for IARU participation in WRC-07 occupied much of the EC's attention during the meeting. Region 2 has been active in CITEL's preparations for WRC-07 and will provide financial support for a member of the IARU WRC-07 team from Region 2. IARU President Larry Price W4RA, attended the EC meeting on behalf of the IARU officers

and International Secretariat, and thanked Region 2 for its support.

Plans for the next IARU Region 2 General Assembly, to be held in Brasilia on September 10-14, 2007, also were reviewed. More information will be forthcoming from Region 2 as the event approaches, but in the meantime all member-societies in Region 2 should "save the dates" and plan to attend this important regional conference!

## Administrative Council Summary Record available

The IARU Administrative Council meets annually to coordinate the representation of the interests of amateur radio, provide liaison between the three IARU regional organizations and the International Secretariat, and conduct long-range planning. In 2006, the Council met in Bangalore, India, right after the Region 3 Conference held there.

The Summary Record of the meeting is now available at <http://www.iau.org/ac-0608min.html>.

The Summary Records of all Administrative Council meetings since 1996 are available at <http://www.iau.org/admin-council-summaries.html>.

## ITU marks 100 years of international radio regulations

In 1906, the first International Radiotelegraph Conference gathered 29 maritime states in Berlin to sign the "International Radiotelegraph Convention" establishing the principle of compulsory intercommunication between vessels at sea and the land.

The annex to that Convention contained the first regulations governing wireless telegraphy. Those regulations, which since have been expanded and revised by numerous radio conferences, are now known as the Radio Regulations of the International Telecommunication Union (ITU), or simply as the Radio Regulations.

Originally occupying just 12 pages, the Radio Regulations now apply to frequencies ranging from 9 kHz to 400 GHz and incorporate more than 1,000 pages of information describing how the radio spectrum may be used and shared around the globe.

The ITU notes that some 40 different radio services now compete for spectrum allocations to provide the bandwidth needed to extend services or support larger numbers of users.

In a release announcing celebrations in honour of the 100th anniversary of the Radio Regulations, to take place in Geneva on October 30, the ITU Radiocommunication Bureau observed "In 2006, the ITU membership has good reason to celebrate the centenary of the Radio Regulations.

The World Radiocommunication Conference (WRC) process has been instrumental in providing for timely and effective international regulatory frameworks for the establishment of advanced new wireless services and applications, while safeguarding the interests and rights of existing radiocommunication users.

One hundred years after 1906 we are witnessing innovative technological solutions using radio transmission setting the grounds for a wireless world."

### Editorial comment (K1ZZ):

Even in those early days, the delegates recognized that the radio spectrum was a unique international resource and that the privilege of access carried with it great responsibilities.

Radio - then known as wireless telegraphy - was a technological marvel at the beginning of the 20th Century and in new forms continues to amaze at the beginning of the 21st. The fact that the radio spectrum remains so useful is testimony to the success of the international regulatory regime that was inaugurated in Berlin.

It didn't just happen; without the original guiding vision and the dedicated stewardship of subsequent generations of delegates to innumerable ITU conferences, the radio spectrum today might well be chaotic, polluted, and practically useless. The ITU and its Member States, and especially the Radiocommunication Bureau, are well deserving of accolades on this important anniversary.

More information on this historic observance may be found at <http://www.itu.int/ITU-R/information/promotion/100-years/index.html>.

Until next month, 73, K1ZZ

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fx 07-3216 8075

## Contest Calendar for November 2006 – January 2007

Nov	11/12	Japan Inti. DX Contest	(SSB)
	11/12	Worked All Europe DX Contest	(RTTY)
	11/12	Spring VHF/UHF Field Day	(CW, SSB, FM)
	25/26	CQ WW DX Contest	(CW)
Dec.	2	RTTY Melee	(RTTY)
	9/10	ARRL 10 Metres Contest	(CW/SSB)
	16	OK DX RTTY Contest	(RTTY)
	26	Ross Hull Memorial VHF Contest	(VHF+)
	(to 14 Jan 07)		
Jan	6/7	ARRL RTTY Roundup	(RTTY)
	13/14	Summer VHF/UHF Field Day	(CW, SSB, FM)
	27/28	REF Contest	(CW)
	27/28	BARTG RTTY Sprint Contest	(RTTY)
	27/28	UBA DX Contest	(SSB)

Greetings and welcome from your new columnist, Phil Smeaton VK2BAA. I'm sure that you will join me in thanking Ian Godsil VK3JS for the years of sterling work he has provided both to AR magazine and VK contesting in general. He has been a stalwart supporter of contesting in Australia and I've got big boots to fill, but let's get started by means of an introduction.

I've been contesting for quite a while, but mainly from the British Isles. I am keen on both domestic and international contesting regardless of mode or frequency. It's not been often that I've used my own UK callsign for contesting, occasionally on UHF for portable contests using my own call G0HSS, but mainly

as part of a Team using the following calls; MD4K, G0EMG, G0KPW (a.k.a. M6T), G0FBB and G3GRS to name but a few. I intend to give a little more detail on some of these activities in future AR issues to add a little European flavour every now and then, if people have an interest to know. I've enjoyed SSB, CW, RTTY, HF, VHF, QRP or QRO contesting - you name it.

I've been in Australia for a couple of years now and I've participated in a mixture of domestic and international contests during my time in VK. Antenna space is somewhat restricted at my rental QTH, but that's par for the course nowadays for most hams (space-wise that is, not necessarily renting!) and its part

of the challenge to muster as best as one can and do your best on the air. A contest station does not necessarily require a huge array of towers with multiple stacked beams and legal limit linear amplifiers, as the majority of contests allow for similarly equipped stations to compete against each other at whatever level of equipment provision, facility or even output power. I've been fortunate enough to do reasonably well in QRP sections for CQWW and CQWPC within Oceania, with just a few watts of power and simple wire antennae with a trapped vertical covering 40, 20, 15 and 10 m (I've no permanent antennae for 160 m or 80 m) all within a suburban backyard, so if I can do it, anyone can!

## Results CQ WW CW Contest 2005

(VKs only Call/Cat/Band/Score)

### Single Operator Unassisted

VK2GC	SOAB	2,267,245 (Op. K5KG)
VK7GN		879,812
VK2NU		464,512
VK2GWK		10,374
VK4AN	SO7	271,579
VK2IMM	SOAB	852,790
VK2GR		210,888
VK4TT		170,754

VK6HG	112,665
VK4BUI	111,826
VK2AR	77,736
VK4VFX	54,096
VK6HZ	23,250
VK4EJ	22,008
VK2PN	4,745
VK2WL	2,812

### QRP

VK2BAA	SOAB	58,810
--------	------	--------

### Single Operator Assisted

VK4XY	SOAB	58,293
VK3KE		40,392
VK6DU		21,730
VK9AA		8,878,488 (Op VK2IA)

# Team Contesting

## VK Contest Club Team

### Australis

VK9AA (Op. VK2IA), VK2IMM, VK2BAA, VK2NU, VK2GC (Op. K5KG) 10,320,345

## VK Contest Team Southern Lights

VK6HZ, PA0MIR, VK7GN, VK4AN 1,538,928

Amongst others, two particular major international contests are due to take place around this time of year; the CQWW Phone Contest at the end of October and the CQWW CW Contest at the end of November. Both contests are well supported around the globe and are excellent for getting on the air and having some fun. Whether you are a serious 'dyed in the wool' contester trying to improve on last year's personal score or against others, or intend a more casual time on the bands to bag that juicy DX that usually accompanies these events, there's plenty for everyone during the CQ Magazine's radiosport events.

There are usually many VK stations active during the CQ contests, either as

an individual effort or as part of a team – see results extract for CQWW CW for 2005. The contests themselves feature 'sub sections' within the contest for such entries, so that stations of similar attributes can effectively compete against each other on as level a playing field as can be provided. However, even a single operator can be an effective member of a team! How? Well, the contests allow for Club Teams to compete and VK has such a Club.

The VK Contest Club (VKCC) has been operating for a couple of years now, with a dedicated group of people around Australia 'grouping' together to maximise their overall score. Since the Club inception in 2004, VKCC members have entered most of the major international contests on CW, SSB and of course RTTY and have achieved some superb results. Maybe this approach for a Club entry could be incorporated into the results of some VK domestic contests – any comments anyone?

As overall Teams, VKCC Australis achieved a world ranking of 4th, VKCC Southern Lights achieved a world ranking

of 20th and as a Club overall, a world ranking of 19th – not bad at all for a fledgling Club effort! At this time of the sun spot cycle, 'all band' entries tend to have a significant leaning towards activity on the lower bands, so imagine what can be done when the cycle progresses a bit further and the higher bands come back into play a bit more. Having me in the QRP section getting a comparatively lower score doesn't add much to the total achieved, but the more the merrier!

The VKCC group comprises of a myriad of highly capable people willing to share their knowledge for the greater good, with an impressive knowledge range covering antennae, RTTY, operating techniques – you name it. Everyone with an interest in contesting is heartily welcome – either old hand at contesting or a newbie dipping a tentative toe into the contesting world. VKCC operate a Website which is worth a visit, so have a look at [www.vkcc.com.au](http://www.vkcc.com.au) to register and join in the fun. No question is ignored or thought-of as 'stupid', so ask away – I certainly have! It would be great for VKCC to put-in an expanded number of Teams for 2006 and beyond.

An ever increasing number of contesters pack their bags and head for exotic parts of the world in order to maximise their score during the contest with rare prefixes from rare islands, etc. Your humble scribe participated a few months ago in such a DXpedition to Norfolk Island as part of the international VI9NI team, to help celebrate the 150th anniversary of the arrival of the Bounty from Pitcairn Island in 1856. With 170 kg of equipment to transport, plus personal luggage, it was no mean feat to organise and full credit goes to Bill VK4FW and Eddie VK4AN for making the numerous arrangements required to make things run as smooth as possible. Bill and Eddie had amassed sufficient gear to allow simultaneous operation on multiple HF bands and on 6 m. We had a huge amount of help from the locals who made us feel very welcome and came to our aid to connect our network linkage and even a local archer to fire a couple of arrows into the top of nearby palm trees to erect our 160 m dipole! With a set-up such as this, technical issues are always likely to arise, and this trip was no exception. One of the rigs refused to be keyed for CW by the laptop, so an interface was constructed



VI9NI Team: Standing from L to R: Bill VK4FW, John VK5PO, Merv VK4DV, Phil VK2BAA. Kneeling L to R: Gary ZL2IFB, Eddie VK4AN. Photo: VK4AN



Ron VE7NS, during the V19NI DXpedition. Photo: VK5PO

from the available components to affect a cure. Try finding resistors etc on an island that generally likes to close its shops at 1 pm on a Saturday afternoon – no mean feat! A simple single transistor switching circuit was quickly assembled from parts salvaged from the contents of Bill's 'we might need these' box and we got on the air to test everything out and ensure that the network and logging software all functioned properly.

The island trip coincided with the CQ WPX CW contest, so four of us took full advantage and wasted no time in setting-up a 'Multi 2' (multiple operators, two transmitters) all-band station within our accommodation. We applied for and were fortunate to be allocated a special callsign, V19NI, and the combination of an exotic Pacific island location and a unique callsign helped us to promote Norfolk Island to people all over the globe – after all, it's a special event so a special callsign seemed appropriate. We operated for the full 48 hours of the contest on a rotating basis, taking advantage of propagation wherever we could. The wonderful thing about operating from a location such as Norfolk Island is that the background noise is exceptionally low, making weak signal reception much easier on the ears – except for the static crashes of course!

As an ad-hoc team (generally, we'd not met one another previously) we managed to put just over 1,600 QSOs and 586 multipliers into the log for a claimed score of 3,344,302 points. Very pleasing and great fun.

We also wrote an article for the local newspaper while we were on the Island, so that we could capitalise on as much positive publicity for the hobby as we could. We had a ball, and I'd thoroughly recommend such a trip to anyone.

Members of the Team hailed from VK, ZL and VE – see photos. Missing from this particular picture is Ron VE7NS, but he can be seen in the next picture, in full flight.

October just saw the CQWW SSB

Contest take place at the end of the month and I've just got back from ZL6QH for the Contest, but more of that another time. This month sees the CQWW CW Contest (plug in your key and send some CW – it's what your right hand is for – and not for drinking lager!), and Spring VHF/UHF Field Day Contest. Late December and early January has the Ross Hull Memorial VHF Contest to offer and then the Summer VHF/UHF Field Day in January. The Ross Hull Contest rules are unchanged from last year so no need to be confused with scoring to hold you back from submitting a log. Why not get some kit ready and try a contest over the coming months for yourself – there's HF, VHF, CW, RTTY, SSB – something for everyone. Suitable logging software has been covered previously in this column for domestic contests and there are several more packages covering international contests also available. Some cost a few bucks and others are free, so have a try and select your favourite for a given contest and get on the air. Pen and paper can still be used of course!

If you have any contest related material for inclusion within the column, topics that you'd like covered or even some experiences and pictures you'd like to share, then please feel free to get in touch via vk2baa@wia.org.au. See you on the bands.

73 de VK2BAA Phil Smeaton

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This is a Westlakes Amateur Radio Club Project

# Ross Hull Memorial VHF-UHF Contest 2006 - 2007

John Martin (VK3KWA), contest manager

The next Ross Hull Contest will run from December 26 to January 15. Logs will be due by February 5. The rules are the same as for last year. After the next contest, there will be a further review of the rules with significant changes likely for 2007 - 2008

## The Contest

The WIA maintains a perpetual trophy in honour of the late Ross A. Hull and his pioneering achievements in VHF and UHF operation. The name of each year's contest winner is engraved on the trophy, and other awards may be made in the various divisions of the contest. The contest is open to all amateurs.

## Duration

0000 UTC Sunday December 26, 2006 to 2400 UTC Sunday January 14, 2007.

In Eastern Summer Time, that is 11 a.m. on December 26 to 11 a.m. on January 15.

## Sections

- A: VHF - UHF (50 MHz through to 1296 MHz), non-digital modes.
- B: Microwaves (1296 MHz and above), non-digital modes.
- C: Digital Modes, all bands.

Digital modes are defined as those in which the decoding of the received signal is done by a computer. Entrants may submit logs for one or more sections.

## General Rules

One callsign and one operator per station. You may claim one contact per station per band per UTC day. Repeater, satellite and cross band contacts are not permitted. No contest activity is permitted below 50.150 MHz. In Sections A and B, entrants making contact on recognised DX calling frequencies should not occupy these frequencies for prolonged periods. All rulings of the contest manager will be accepted as final.

## Valid Contacts

For Sections A and B, entrants must exchange RS (or RST) reports plus a serial number. Serial numbers need not be consecutive. For difficult propagation modes such as meteor scatter, exchange of callsigns plus two further digits is

sufficient. For Section C, exchange callsigns plus two further digits that cannot be predicted by the other station.

## Scoring

Scoring will be based on the best 7 UTC days nominated by the entrant. Each contact will be scored as follows:

For 2 metres and above, one point per 100 km or part thereof (i.e. up to 99 km: 1 point, 100 - 199 km: 2 points, etc).

For 6 metres only, contacts below 1000 km: as above. Contacts from 1000 km to 2400 km, 2 points regardless of distance. Contacts over 2400 km, 20 points regardless of distance.

The band multipliers are:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

## Logs

Logs must cover the full contest period and contain the following for each contact:

- Date and UTC time.
- Station location (if operating portable).
- Frequency and callsign of station worked.
- Reports and serial numbers sent and received.
- Approximate location or grid locator of station worked.
- Estimated distance worked and points claimed, including the band multiplier.

Separate scoring columns for each band would be helpful.

## Cover Sheet

Logs must be supplied with a cover sheet containing:

- Operator's callsign, name and address.
- Station location (if different from the postal address).
- Section(s) entered, and a list of the UTC days to be scored.
- A scoring table set out as the example.
- A signed declaration that the station has been operated in accordance with the rules and spirit of the contest, and that the contest manager's ruling will be accepted as final.

Please use the following format for

your scoring table. If you wish you can cross-check by adding the daily totals across the table, but please make sure that you include the separate band totals.

Date	6 m	2 m	70 cm	23 cm	etc
Day 1	xxx	xxx	xxx	xxx	xxx
Day 2	xxx	xxx	xxx	xxx	xxx
etc.	---	---	---	---	---
Total	xxx +	xxx +	xxx +	xxx +	xxx
	= xxx (GRAND TOTAL)				

A sample cover sheet and scoring table has been included in the postings on WIA web sites and the VK-VHF e-mail reflector. Copies can also be obtained from the e-mail address given below.

## Penalties

Minor errors in distance estimates or calculations may be corrected and the score adjusted. Prolonged use of recognised DX calling frequencies (especially when the reports indicate strong signals) may incur a scoring penalty. Inclusion of any false log entries will lead to disqualification.

## Entries

Paper logs may be posted to the Manager, Ross Hull Contest, 3 Vernal Avenue, Mitcham, Vic 3132. Electronic logs can be e-mailed to vhf-contests@wia.org.au. The following log formats are acceptable: ASCII text, Office 97 or Office 2000 RTF, DOC, XLS or MDB.

Logs must be received by Monday, February 5, 2006. Early logs would be appreciated.

## Note on Calculating Distances

Absolute accuracy is not required. You just need to know whether each station is above or below the nearest multiple of 100 km, so you can use a compass to draw 100 km circles around your location on a map. A more accurate method is to use six-digit Maidenhead locators and a computer program that can be obtained by emailing the address given above. (The program has just been updated to version 3.)

# WIA ROSS HULL MEMORIAL VHF-UHF CONTEST

Dec 20 - Jan 20

Contest date:

Call sign:  
Station entered:

Operator's name:

- A VHF-UHF
- B Microwaves
- C Digital Modes

Station location:

\* If entering more than one section,  
please make out a separate cover sheet  
for each section.

Operator's address:

Postcode:

## Declaration

The station was operated in accordance within  
the rules and spirit of the contest. I agree to  
accept the Contest Manager's decision as final.

Signature:

## SCORING TABLE

Date	50 MHz	144 MHz	432 MHz	1296 MHz	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	Other	Day	Total
------	-----------	------------	------------	-------------	------------	------------	------------	-----------	-------	-----	-------

1											
2											
3											
4											
5											
6											
7											

BAND TOTALS

TOTAL CLAIMED SCORE FOR BEST 7 DAYS

COMMENTS OR SUGGESTIONS:

# 26th ALARA Contest Results

Marilyn VK3DMS

26/27th August, 2006

Diane VK4KYL	1169	Top overall, Top phone, Top VK YL non-member
Catherine VK4FRED	911	Top VK ALARA member, Top Foundation licensee, Top VK4 ALARA member
Pam VK4FABB	735	
Nora VK5NYD	685	
Pet VK3QZ	514	Top VK YL CW, Top VK3 ALARA member
Rose VK2HOP	466	Top VK2 ALARA member
Gerald VK2HBG	465	Top VK OM
Rosanne VK7NAW	416	Top VK7 ALARA member
Chris VK2LCD	407	
Michele VK3FEAT	398	Top VK SWL
Gwen VK3DYL	381	
Leanne VK4PKT	286	
Mike VK3AVV	280	
Dot VK2DB	248	
Robyn VK3WX	247	
Susan VK7LUV	240	
Mal VKC2HSV	235	
Alan VK8AV	234	
Kate VK4XYL	226	
David VK5AYD	220	
Marilyn VK3DMS	188	CHECK LOG
Margaret VK4AOE	167	
Brian VK3FIDX	161	
Bev ZL1OS	141	Top DX ALARA member
Jenny VK5ANW	137	Top VK5 ALARA member
Christine VK5CTY	136	
Shirley VK5JSH	114	
Allen VK5FD	107	
Kathy VK3XBA	85	
Gerard VK2IO	83	
Alan VK7JAB	77	
Dana VK3HHL	73	
Mavis VK3KS	68	
Bron VK3DYF	49	
Elizabeth VE7YL	36	Top VE ALARA member
Elva ZL1BIZ	30	
Philip VK2XPL	16	
SUMMARY:	ALARA	
	YL non-members 4	
	Orns 11	
TOTAL LOGS	37	

This year was an even better year than 2005. Conditions were excellent, with most of the activity taking place on 40 and 80 metres, and we had the greatest number of participants since 1993! Everyone seemed to thoroughly enjoy the Contest, with many comments about how friendly it was. After all, that's how we want it to be. One big change this year was the number of logs received by email - 26 out of the total of 37!

As usual, unfortunately, there were quite a number of calls

Continued next page

# Spotlight on SWLing

Robin Harwood VK7RH.

This year is rapidly coming to a close. So much has happened to me personally and I have recently been under quite a deal of pressure that I have not been able to pay much attention to what has been going on shortwave.

Apparently a new sunspot cycle commenced in mid September and I expect that propagation will slowly climb back up. Already the higher frequencies are opening up in the evening hours.

You may recollect that Radio St. Helena made a few shortwave broadcasts on a disused point to point channel a few years ago. Propagation to this area was virtually non-existent. Because of personnel changes and the sender being dismantled, Radio St. Helena in the South Atlantic went silent. Many missed out and a band of DX enthusiasts were keen to reactivate this rare station on HF. Radio St. Helena, naturally, continued on FM and MW yet they were motivated to obtain suitable senders and a rotatable antenna to put Radio St. Helena back on shortwave.

Here is the official information about the "RSD REVIVAL" broadcasts from Radio St. Helena.

RSH will transmit on 11092.5 kHz in Upper Side Band mode on Saturday, 04. November 2006 at the following times:

1800 - 1930 UTC to New Zealand (via short path)

2000 - 2130 UTC to JAPAN (via short path)

2200 - 2330 UTC to Europe

2330 (Sat.) - 0100 (Sunday) UTC to North America

I personally wonder if there will be propagation to this area, judging by these times. We can only hope! "There will be a new and interesting QSL card for this "Revival" broadcast. It will take several months to process the reception reports, so please be patient. Only reception reports sent by regular mail will be accepted. Email-reports will NOT be accepted. Return postage is absolutely required and is "at least" three IRC's or "Greenstamps". All reports should be addressed to the Station Manager of RSH."

Warfare in Lebanon ceased and an international peace keeping force moved into the border regions, facing northern Israel. An uneasy truce exists. I have been hearing those spy number stations all over the lower HF bands and many are targeting the Middle East. As well, tensions have escalated in the Caucasian regions between Georgia and Russia with official and clandestine stations engaged in propaganda. This region has been extremely unstable for centuries with frequent ethnic based conflicts. The

present Arab-Israeli conflict is only recent history compared to the long running ethnic and cultural feuds that have been there forever.

Is shortwave dead and has it passed its use by date? More organisations are opting out for internet delivery and especially pod-casting. However, it is apparent that the internet is prone to censorship and some now are questioning if they may have been too hasty to write shortwave off.

The recent coup in Thailand when the military turned off domestic relays of foreign radio and television stations and the closure of the community based broadcasters saw the hurried re-establishment of shortwave broadcasts beamed to Thailand. The BBC must have been regretting their decision to close Thai language services. The VOA was scheduled to close Thai but hurriedly increased their output following the coup. Also the HF relay stations of the BBC and VOA in Thailand were briefly closed.

Well that is all for this month. Please send me your comments to vk7rh@wia.org.au or snail mail to 20/177 Penquite Road, Norwood Tas 7250.

73 de VK7RH

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## 26th ALARA Contest Results *continued*

heard for which no log was received. It doesn't matter how small the number of contacts, the log is welcome.

Some of the comments made this year: "Most enjoyable..." "I had a ball..." "A really great ALARA Contest..." "A great time on air..." "So pleasing to hear so many ALARA members and great to work the new callsigns too". "Good to hear so many people contesting" "...It was great to hear the foundation licensees in the thick of it..." "Just a mini log but still enjoyed the opportunity"...

I am sure that those Foundation licensees who took part can be very proud of their efforts. As can be seen,

an ALARA Foundation licence member had the second top score - well done Catherine VK4FRED! You will be receiving a special trophy to celebrate your achievement. The top score of 1169 points was truly terrific - congratulations to Diane VK4KYL. We welcome a new OM winner this year - Gerald VK2HBG - hope you try again next year. Unfortunately there was very little participation from DX members, but much of this is probably due to the bands, which are not brilliant for DX.

However Elizabeth VE7YL, Elva ZL1BIZ, Celia ZL1ALK and Bev ZL1OS

were heard and we all welcomed our contacts with them.

The earlier closing date of September 30 does not seem to have inconvenienced anybody, and it certainly means that I can get the results out much sooner than before.

Now we all hope that 2007 will be as good if not better than 2006, with even more taking part. The 2007 Contest will be held on August 25/26, so mark it in your diary, and we'll all catch each other again then. Until then, best wishes to all, and thank you for taking part this year.

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Well we really have got some exceptional DXpeditions to look forward to at the end of this year and the early part of next year. Probably the most wanted entity is **LAKSHADWEEP ISLANDS** due to take place in December 2006.

The **National Institute of Amateur Radio (NIAR)** has announced that the Lakshadweep Islands (VU7), the #2 Most Wanted DXCC Entity, will be activated from 1st December to the 10th. Approximately 70 multinational and 30 Indian operators are expected to travel from Kochin, India, by boat to Lakshadweep. Plans are to operate as VU7RG (requested call, in memory of the late Rajiv Gandhi, VU2RG, former Prime Minister of India) from three "excellent and well organized sites". An International Advisory Committee (IAC) is constituted under the chairmanship of Mr. S. Suri VU2MY to organise the event. A Sub-Committee - including Frank Rosenkranz DL4KQ (Chairman), Kyoko Miyoshi JR3MVF, Marti Laine OH2BH and Glenn Johnson W0GJ (members) and S. Ram Mohan VU2MYH (convenor) - will deal with the requirements and coordination of the international participants. Further information will be released exclusively by NIAR ([www.niar.org](http://www.niar.org)).

The official VU7 Lakshadweep webpage is now online at <http://www.vu7.in/>.

**XF4** - A large group of operators from Mexico (XE1AY, XE1FRF, XE1FXF, XE1FXM, XE1FXZ, XE1GRR, XE1HBU, XE1MMB, XE1UN, XE2K) and Germany (DF7TH, DJ5IW, DK2WV, DL1YFF, DL3DXX, DL8LE) will operate on all bands and modes (EME and satellite included) as XF4DL from Isla Socorro (NA-030), Revillagigedo from 17 October to 3 November. They plan to have up to five stations operating simultaneously, and to focus on the WARC and low bands, and on digital modes (RTTY and PSK63). Further information can be found at <http://www.xf4dl.xedx.org/>. Weather permitting, at the end of the operation they will be active "for several hours" as XF4K from Clarion Island (NA-115). QSL via XE1KK (Mexico only), N6AWD (rest of the Americas) or DL9NDS (rest of the world). Contributions to help defray the significant costs of this DXpedition will

be gratefully accepted; please contact DL8LE or XE2K for details.

**S2 - DXpedition project BANGLADESH 2007**, which has been in the planning stage over the last two years, will now take place in mid-January 2007. A group of Spanish Amateur Radio operators will be QRV as S21EA between January 10th and 16th. They are Josep EA3BT (team leader), Tony EA2PA, Nuria EA3WL (YL), Fer EA5FX, and Juan EA8CAC. Plans are for activity on 6 through 160 metres on CW, SSB and RTTY. "Our aim is to give the new one to the maximum number of station(s), and that's why we will have 3 station(s) on the air simultaneously" says team leader Josep EA3BT. A DXpedition Web page is in the plans and will eventually be posted at <http://www.ea3bt.com/s21ea.html>. QSL via EA3BT either direct or via the bureau.

**SV2ASP/A - Monk Apollo** has been away for most of his summer and it is not exactly clear when he will be going back to Mount Athos. Kostas SV1DPI has now sent him a homemade interface for use on RTTY and PSK31. Apollo used to be active on RTTY, but has not been over the last three years due to a faulty TNC. NCDXA donated a new one but unfortunately Apollo has not been able to get it running. He likes using RTTY and can manage the pileups better, which may mean more activity from Mount Athos as it causes less noise for the other monks. Tony LZ1JZ (lz1jz1@gmail.com) has donated a new QSL design, which is a four sided folded card and can be seen at <http://www.dailydx.com/sv2asp.htm>. If you work SV2ASP/A and need confirmation, make sure you QSL via Monk Apollo's QRZ.COM address. It does work and he is very reliable at confirming contacts.

**ZL9** - For those of you who worked ZL9BSJ/P (ZL2BSJ) we have good news: he was genuine! However, for those who missed Bert, it could be a while before the next ZL9 operation. Bert works for New Zealand's weather service and sails to the Campbell Island area once or twice a year. If he is lucky, and has some spare time, he operates from the wharf for a few hours before heading back out to sea. Lee ZL2AL said that when ZL9BSJ/P was QRV recently, he made 133 QSOs.

The QSOs were all hand logged as Bert's battery on his computer had failed. The weather cut the operation short. The bad news is that future operations, by weather service personnel, are going to be more difficult as they will probably only be spending one day in the area.

**FO - Pierre F5JFU** will operate holiday style on 10, 15 and 20 metres (maybe also 40 m) CW, SSB and maybe RTTY as FO/F5JFU from French Polynesia from 21 October to 19 November. He will visit three islands: Tahiti (OC-046, D1FO-002), Moorea (OC-046, D1FO-010) and Bora-Bora (OC-067, D1FO-003). QSL via home call, direct or bureau.

**C6** - During the CQ World Wide CW DX Contest at the end of November, N3DXX will be operating from the Bahamas. He'll use C6/home call or possibly a full C6A call. QSL via KN5H.

**TT8 - Philippe F4EGS** will once again be QRV as TT8PK from Chad from September 20th until November 20th. Look for activity on 10 through 40 metres on SSB and the digital modes. For possible skeds send an email to [cocheese@laposte.net](mailto:cocheese@laposte.net).

**XU - Tony KM00** will be on his way to Cambodia. He plans to start up on November 20th and be QRV as XU7MWA including the CQ WW CW Contest. He'll be single-op all-band. QSL route is yet to be announced.

**J3 - Bill Nelson VE3EBN** plans to be QRV as J37LR/J37T from Grenada from October 19th to November 26th. He'll be on all bands on CW, SSB and PSK31.

**V51 - Klaus DJ4SO** will spend three weeks at the Hohewarte Guestfarm in Namibia. While there, he will be QRV as V51/DJ4SO on 6 metres through 160 metres on CW and RTTY/PSK31. Klaus will put a special emphasis on the low bands. Look for activity from November 11th to December 1st, including the CQ WW CW DX Contest. QSL via DJ4SO direct, via the bureau or LOTW.

Special thanks to the authors of *The Daily DX (W3UR)* and *425 Dx News (11QJ)* for information appearing in this month's *DX News & Views*.

For interested readers you can obtain from W3UR a free two week trial from [www.dailydx.com/order.htm](http://www.dailydx.com/order.htm).

# Over to you

## Communications

The title of this letter is 'Communications' because today, 23 September 2006, is my 91st Birthday; my name is Stan, my callsign is G3XON and my QTH is Shalford, England.

Now I will explain the really interesting part of this message. While cruising round 20 metres on 21st February 1990 I heard VK7KH on 14.139 MHz and gave a call. Back he came and we exchanged reports in the usual way followed by a nice first time 18 minute QSO, learning that his name was Ken and his QTH was Burnie, Tasmania.

Just before we signed off, I happened to mention that I was born in the month of September. To my amazement Ken came back and said that he was also born in September - the 23rd in fact! Wow! It may be hard to believe but I was also born on the 23rd September, and from that day on our friendship was cemented!

Thus, from February 1990 to this very day, Ken and I have kept in contact one way or another on a regular basis,

certainly within a week or so, sometimes more frequent. Communication is what this is all about and our friendship has now grown to include our families. I cannot overrate the pleasure this aspect of amateur radio has meant to us!

Needless to say that we NEVER forget the 23rd September! As each year comes round we usually exchange something or other for the occasion. Today, my birthday, I have received from Ken nothing less than a splendid copy of the August issue of your *Amateur Radio* magazine - The Journal of the Wireless Institute of Australia.

This issue of the *AR* magazine is particularly appropriate inasmuch that it features The Centenary of Australia's first overseas wireless transmission in 1906, and some splendid pictures. I am currently preparing a fairly exhaustive Power Point slide presentation lasting about 60 minutes, covering historical interests of telegraphy and early wireless

from the 19th Century to the 1930s and of course Guglielmo Marconi

I plan to give the above presentation at our newly formed Wey Valley Amateur Radio Group, Guildford, in November this year. I am a founder member of this Group and I feel that I owe them quite a lot! I will be exhibiting crystal and valve wireless sets, loudspeakers and associated items of the 1920s. To mention that my Uncle Chris worked for Marconi is perhaps why I have always had an interest in wireless. I helped to build my first one valve set in 1924.

Please forgive this rather long message that has become an article, but it suddenly occurred to me that you or some of your readers may be interested. With Amateur Radio, one can never be sure what excitement is in store, and reading your *AR* Magazine and making Communications is foremost!

**Stanley Casperd, G3XON,**  
Shalford, Surrey GU4 8DD, ENGLAND.  
23 September 2006

## Silent Key

### James Mourilyan Swan VK2BQS

I wish to advise of the passing of my husband James Mourilyan Swan VK2BQS, aged 84 years, on Monday 18th September, 2006.

Jim was cremated at Newcastle Memorial Park with a celebration of his life, and with the local branch of the R.S.L. giving a moving 'Tribute'.

Jim was a loving honourable man who took pride in his family, friends, community and his country. His love of 'radio' gave him much pleasure.

He will be sadly missed by many.

**Submitted by Helen M. Swan**

Jim Swan ex-VK2BQS became a Silent Key on 18th September 2006 at age 84, after a long illness resulting from several strokes. He was cremated on 21st September at Beresfield.

Jim was born 1922 in Parramatta NSW. Shortly after, his family moved to Gurraveen near Parramatta, where he lived for 73 years before ending his days at Karuah, north of Newcastle.

Jim joined the Royal Australian Air

Force the day he turned 18 and shortly afterwards he had commenced training as a pilot. He remained in the service until the last day of the wartime Air Force. The RAAF experience ranged from Coastal Search and Surveillance, through Test and Ferry to Operational Recce and Bombing Strikes in the East Indies area.

By late 1946, Jim had joined Trans Australia Airlines as a Pilot (First Officer) becoming a Captain (Training Captain) by 1954. At that time he transferred to East West Airlines to assist them in their expansion program. He retired in 1975 as Chief Pilot, after being responsible for the pilot standards on the various operated by the company. He had over 21,000 hours and had flown 18 types of aircraft.

When Jim retired, he found he still missed a component of his flying days, and that was the continuous use of radio communications where he had a Flight Radiotelephone Operators Licence with a 20 wpm Morse endorsement.

After a short stint on CB radio, Jim was first licensed in December 1977 as

VK2NNG, and upgraded in June 1978 to the Full Call VK2BQS.

Jim's favourite mode was radio teletype, which he commenced using in 1981. He became a member of the Australian National Amateur Radio Teleprinter Society, or ANARTS. He later moved into AMTOR, using that mode to transfer ANARTS broadcast material to relay officers, and also acted as a relay station on 20 metres. This was very rewarding for Jim, as he developed a large following and had call-backs from every state and some DX stations regularly.

Jim also assisted Col VK2CTD with the running of the ANARTS RTTY Contest where he could, and so helped keep ANARTS thriving.

For a much fuller report on Jim's life, go to:

<http://users.bigpond.net.au/ctdavies/jimspage.htm>

Vale Jim ex-VK2BQS

**submitted by Pat Loeper VK2JPA**  
ANARTS Secretary

## Weak Signal

David Smith - VK3HZ

The weather gurus are making dire predictions for the coming summer. It looks like we're in for a long, hot, dry period and indications are that it has already started, with one of the hottest and driest Septembers on record. However, for VHF/UHF enthusiasts, there is a positive aspect to all this. We could be in for a very good DX season with lots of slow-moving high pressures cells and associated ducting. Keep an eye on the Hepburn Tropo Ducting Forecast site: [www.dxfinfocentre.com/tropo\\_aus.html](http://www.dxfinfocentre.com/tropo_aus.html)

And, almost on cue, the first VHF opening across the pond to New Zealand occurred on September 24th. At about 0700Z, Nick ZK1IU worked Ross VK2DVZ (5/5) in Taree and Steve VK2ZT (5/5) near Newcastle, both on 2 m.

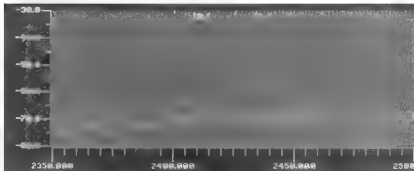
On the morning of October 4th, conditions were generally good from the Adelaide region across Victoria and up into northern NSW. Mark VK2EMA and Leigh VK2KRR both reported hearing the VK5VF 2 m beacon at 55. Leigh worked Brian VK5UBC (5/6) on 2 m, and Phil VK5AKK on 2 m (5/9+), 70 cm (5/9) and they could hear each other's carriers on 23 cm, but no contact was made. Brian VK5UBC reports working VK2KRR, VK3WN, VK2EMA, VK3HZ, VK3VG, VK3ANP, VK3RW and VK3II on 2 m and VK3VG and VK3YLV on 70 cm.

## Spring VHF-UHF Field Day

A reminder that the Spring VHF-UHF Field Day is on the weekend of November 11th and 12th. Even if you do not intend to go out portable, please take the time to provide contacts for those who do.

## 13 cm Band

Anyone who is active on the 13 cm band (2.4 GHz) should be well aware that it is becoming less usable day by day. The interference resulting from the insidious spread of WiFi, cordless phones, AV senders, microwave ovens ... and on the list goes ... is gradually filling the weak signal end of the band with spurs and noise. I even have a problem at the home QTH with 2.4 GHz consumer items interfering with each other - the WiFi gets



into the AV sender, and don't microwave anything while trying to make a call on the cordless phone! One of our American brethren hooked his spectrum analyser up to an antenna and recorded the spectrum in the picture above.

The "grass" is probably WiFi, cordless phones and the like, while the broadband interference is probably an AV sender. It clearly shows that the area in which we operate for weak signal operation - 2403 MHz - is being swamped with interference.

Going back a few years, our allocation covered the range 2300 to 2450 MHz. The advent of microwave Pay TV systems like Galaxy and Austar in that frequency band saw our portion drastically reduced to 2400 to 2450 GHz. However, one little-known fact is that we still retain a small allocation from 2300 to 2302 MHz. The Pay TV systems now seem to have largely self-destructed, so the bottom end of our old allocation may be relatively free of interference. Perhaps it would be more logical for us to operate in the 2.3 GHz area, well away from the chaos at 2.4 GHz. I'd be interested to hear from anyone who has any knowledge of the state of the 2300 to 2302 MHz portion of the band.

*(Editor's Note: On the Summer VHF/UHF Field Day this year, contact from the area around Neerim South was impossible anywhere around 2403 MHz, due to Wireless LAN traffic. I did have success using 2400.1 MHz. This was possible as our transverters have the local oscillator set for 144.1 MHz coming out at 2400.1 MHz. We normally operate with the IF*

*at 147.1 MHz, giving 2403.1 MHz as the input/output frequency. This also allows the system to be used for receive on the S-band downlink from amateur satellites.)*

## Aircraft Enhanced Propagation

Barry VK3BJM near Kyneton in central Victoria writes about some interesting AEP efforts:

*A few notes on contacts from Saturday morning (26/11/05). The normal AEP shindig was nearly finished, when Peter VK5ZLX asked me (via the VK Logger) if I wanted to have another go with the AEP "window" we'd observed back on the 28th of October. I agreed, and checked the on-line arrivals schedule for Melbourne Airport. The Virgin flight 536 (from Adelaide to Melbourne) was due to land at 2300Z (1000 EDT), so assuming that it would start to be in position 30-35 minutes before landing, I started calling at 2222Z. We had a weak tropo path to start with (S1 each way) but after about 2 minutes flutter became apparent on the signals before they became more solid as they built to the 56 report I gave Peter, and the 58 he gave me. That strength of signal stayed until about 2234, when it dropped sharply to the normal tropo level at 2235*

*By chance, I called CQ again at 2239Z, and Peter came back at 55, giving me another 58! We had another aircraft in the path, so I went back to the Melbourne Airport website to find which one it could be. I checked the domestic flights, neither QANTAS or Virgin (or anyone else) had anything due that would be travelling that*

route. I then checked the international arrivals board, and found a Singapore Airlines flight (SQ237 from Hong Kong) due to land about 10 minutes after the Virgin flight.

I went back to the arrivals. QANTAS had a flight from Adelaide due in Melbourne at 2350Z. I suggested via the Logger that we should try 70 cm. We got established on 2 m at 2309Z (55/58 again) before QSY'ing to 70 cm - unfortunately nothing was heard at either end. Signals on 2 m held up until 2317Z.

Seems like the Adelaide - Melbourne flight path can provide regular and predictable 10-minute AEP windows between Kyneton and the Barossa. My next intention is to see if the path will provide enhancement further south from Peter's QTH (to Brian VKSUBC in Gawler, for instance), and if so determine the difference in the time calculation.

Peter and I also need to have a few more goes at AE on 20 cm.

The path won't provide enhancement into Adelaide proper; the only place the path will intersect with my beam heading to Adelaide is somewhere near the northern end of the Adelaide Airport runway...

My apologies to Barry that this item was waylaid for so long. Perhaps the next

section on ADS-B could be of interest to him for prediction of AEP events.

## ADS-B

In the June issue, I spoke about the ADS-B system where aircraft regularly transmit data packets containing such items as their position and identification, on 1090 MHz. A UK company - Kinetics - makes a decoder box with software to turn your PC into a pretend air traffic control display.

Now a Sydney-based enthusiast has set up a web site to merge data from decoder boxes around the world and present the result on a Google Earth display: [www.openatc.com](http://www.openatc.com)

In Australia, there are currently semi-permanent data feeds from Sydney, Melbourne and Brisbane with a temporary one (sometimes offline) around Hobart. There are more to come. The range seems to be up to about 400 km, so coverage between Hobart, Melbourne and Sydney is almost continuous.

ADS-B-enabled aircraft are still few - mostly big internationals and those less than 3 years old. So there can be times when not a lot of aircraft can be seen. This will improve as ADS-B becomes mandated on all aircraft in 2009.

So next time there's a huge Aircraft-

enhanced signal, check Google Earth to see if it's due to an aircraft with ADS-B.

## VK-ZL Propagation Logger

Finally, another plug for what I consider one of the most valuable Internet resources for the VK VHF/UHF enthusiast - the VK-ZL Propagation Logger [www.vklogger.com](http://www.vklogger.com)

The logger provides valuable real-time information about the state of the bands, as well as a wealth of useful background information on beacons, events, VHF operator information, etc.

Adam VK4CP is the creator, administrator and general dogsbody behind the site, and somehow also finds time to operate his radios. Adam also funds the site, which resides on a commercial server in order to provide the reliability, bandwidth and rapid response time expected of such a resource. Although he doesn't publicise the fact, contributions to the running costs of the site are very welcome. If you find the site useful, consider helping Adam out with the costs. There is a Donate button on the main page that provides more information.

Please send any Weak Signal reports to David VK3HZ at [vk3hz@wia.org.au](mailto:vk3hz@wia.org.au).

## Digital DX Modes

Rex Moncur - VK7MO

The EME echo mode on the older versions of WSJT (Version 4) can be a useful indicator of system performance but there are some issues relating to EME one must take into account to achieve best results.

1. Faraday rotation
2. Amplitude variations due to libration
3. Frequency spreading due to libration

The way the echo mode works is that it transmits a signal for 2 seconds, waits for 0.5 second when the signal is about to return from the moon, receives and records this signal for 2 seconds, averages the signal for as many periods as desired, reports the results and keeps repeating this process. The program also provides a spectrum that shows the spread of the signal which might for example be due to libration frequency spreading. Through the use of the averaging process and the spectrum display one can detect average echoes at low as -38 dB on the

WSJT scale. It is possible to reset the average manually after each echo if one is interested in studying the variation of the signal amplitude and frequency spreading of individual echoes. All these separate echoes are recorded in the decode.com file and can be copied into a spreadsheet for more detailed processing.

Version 4.9.8 of WSJT, which includes the echo mode, can be downloaded at: <http://pulsar.princeton.edu/~joe/K1JT/Download.htm>

The echo mode has not yet been included in the later versions of WSJT, although this is intended.

On the lower EME bands such as 50, 144 and 432 MHz, most stations use linear polarization and the strength of the returned echoes vary depending on whether the polarization of the returned signal is the same as your antenna. This variation cannot readily be predicted and can take from a few minutes on 50 MHz, to half an hour or more at 432 MHz to go through a peak. Variations due to this

effect can be up to 20 dB. The best one can do is to wait for the echoes to peak and take that as the measurement on which to base system performance. At 1296 MHz most stations use circular polarization and this avoids the problems of Faraday rotation.

Libration amplitude variations affect returned signals on a shorter timescale of seconds at 50 MHz, about a second at 144 down to one tenth of a second at 1296 MHz. These amplitude variations can be up to 10 dB or more between successive echoes at 1296 MHz and are still significant on the lower EME bands. The best one can do to overcome the libration amplitude variations is to average the amplitude over a number of echoes, but this does of course make it more difficult to find the peak if Faraday rotation is also involved. WSJT allows one to average the echoes for any period and typically at 1296 MHz an average of 50 readings gives results that are consistent to within plus or minus 1 dB

WSJT measures echoes in bins of about 0.66 Hz bandwidth, but the signal can be spread due to libration over one or two bins at 144 MHz and up to ten bins at 1296 MHz. As WSJT reports the echo level in the peak bin, this can dramatically underestimate the echo energy if it is spread over many bins – by as much as 10 dB at 1296 MHz. To help overcome this problem, WSJT provides a “W” reading which represents the approximate width of the signal in Hz and thus gives an indication of the number of bins over which it is spread. For example, if the W is 6.6 Hz, then most of the signal is spread over ten 0.66 Hz bins. If all the energy was equally spread between these bins, the reported power would be one tenth of the actual and thus down by 10 dB. Now in practice the energy is not spread equally but more in a bell curve shape with more energy inside the closer bins but still some energy in the bins outside the reported W reading. However tests show that the W does give a reasonable indication of the average spread of the signal and thus can be used to calculate the actual average echo level.

The table gives the correction one should

add in dB to the reported signal level for various values of reported W.

A typical example at 1296 might be:  
Average echoes over 50 samples  
= -30 dB

W = 4.7 Hz, correction 8.5 dB  
Corrected echo = -21.5 dB

Having measured a corrected echo, one needs a means of comparing this with the expected system performance. The WSJT program provides a calculator that can be used to estimate the expected echo for any particular equipment set up. The calculator gives the estimated echoes with reference to the noise in both a 2.5 kHz and 50 Hz bandwidth. Note the echoes are measured on the WSJT scale which applies to a nominal SSB passband of 2.5 kHz, so this is the reference to be used.

Doug VK3UM has produced a calculator (EMECalc3) that provides for a wider range of station parameters. If you use Doug's program you need to set the bandwidth to 2.5 kHz to achieve comparable results. Doug's program was recently updated and is available at:

[www.sm2cew.com/download.htm](http://www.sm2cew.com/download.htm)

Tests show that both calculators give similar results and at 1296 are within 2 or 3 dB of the measured

results. This is not too far off and the difference might reflect the fact that W does not fully measure the spread of reflected energy at 1296 MHz.

There is a question as to the optimum number of samples to use in the average when running linear polarisation. This is a compromise between making the number too small and not having enough samples to get a good average due to libration amplitude variation, or making it too large and not finding the peak as Faraday varies. Fortunately, the variation of libration amplitude tends to drop with lower frequency while the speed of Faraday increases and there is the opportunity for reasonable compromises. While I don't have enough data to determine the best compromise I think a reasonable starting point would be as follows when using linear polarisation:

50 MHz	10 samples
144 MHz	25 samples
432 MHz	50 samples
1296 MHz	50 samples

When using linear polarisation, the approach is to measure the echo over the desired number of samples and then reset the average on the WSJT program and make repeat measurements until one finds the best average which should result from the peaking of Faraday.

Please send any Digital DX Modes reports to Rex VK7MO at [rmoncur@bigpond.net.au](mailto:rmoncur@bigpond.net.au).

## The Magic Band – 6 m DX

Brian Cleland – VK5UBC/BC

There haven't been any reports of openings during September.

On the morning of 6th October tropo conditions on 2 m and 70 cm were very good from my QTH to central Victoria, so 6 m was tried and, although signals were only S1, contacts were completed with Trevor VK3VG at Cobram (600 km) and David VK3ANP at Wangaratta (700 km) on 6 m tropo.

Further to the beacon listings in last month's notes, it is pleasing to note that the Darwin beacon VK8VF is now back on air on 50.310 CW. Look forward to hearing the beacon and hope that there is some activity from Darwin during the coming summer.

In the Barossa Valley, Peter VK5ZLX has finished erecting his antennas with the last one to go up being a 9-element

40 foot long-boom 6 m Yagi (M2 antenna). Pictured are Peter's very impressive antennas, at the top a 32-element 70 cm Yagi, in the middle an 18-element 2 m Yagi with the 6 m Yagi at the bottom.

Hopefully, in November we will start to see the beginning of the summer DX season. Although it is the bottom of the sunspot cycle, we should still experience a good sporadic-E season with many openings around Australia and to our near Pacific neighbours. It is hoped all 6 m operators support and take part in the local DX and not wait for the sunspot



cycle to increase and the international DX to appear.

Please remember to send any 6 m information to Brian VK5UBC/BC at [bcleland@picknawl.com.au](mailto:bcleland@picknawl.com.au).

# ANVDG 2005/2006 Long Distance Competition

Leigh Rainbird VK2KRR

Starting the 1st of July 2005 and finishing on the 30th June 2006 was the initial Australian National VHF DX Group (ANVDG) Long Distance Competition.

It was quite an interesting season and some big contacts were made by those with the right propagation knowledge, the right equipment, in the right locations and who were listening at the right times. Or perhaps just a bit of good luck?

The competition has two sections, a Weak Signal mode section and a FM DX section. Each section then has separate divisions (VK1, VK2, VK3 etc) and the top National contacts. Then sub categories. The top 4 contacts are listed in each category.

The FM DX section has two different categories, FMS (FM Simplex) and FMR (FM Repeater) and two bands only, 2 m and 70 cm. Contacts in the FM sections must be made with vertically polarised antennas to keep in the spirit of the FM section. FMS is a direct simplex two way

radio (not IRLP or repeater etc) contact between two stations. While the FMR contacts are paths from an operators QTH to a repeater station only, this does not include the distance to the station being worked via the repeater only the distance of one station to the repeater.

The Weak Signal mode section covers bands from 144 MHz to 10 GHz. There are many different Propagation mode categories. These are:

Tropo B	= Tropo Bight Path
Tropo I	= Tropo Inland
Tropo T	= Tropo paths over the Tasman to ZL
Tropo BS	= Tropo paths to VK7 over Bass Strait
TEP	= Trans-Equatorial Propagation
EME	= Earth Moon Earth
Aurora	= Aurora Scatter
Sporadic E	= Sporadic E
Meteor D	= Digital Meteor Scatter
AE	= Aircraft Enhancement
ATV	= Amateur Television

Categories ending in D suffix are made digitally. For example, Tropo TD would be a Tropospheric contact over the Tasman Sea using a mode such as JT65b or similar.

Contacts with an (\*) at the end of the category designation means the contact was claimed by both stations. Otherwise the first callsign listed has claimed the contact for the contest.

Listed below is the list of all National best distances for all bands in which contacts were submitted. For the 1296 MHz section I have included the divisional contacts also. Divisional contacts for other bands can be viewed on the ANVDG website at <http://www.users.bigpond.com/anvdg/> and look for the link from the main page.

Whet your DX appetite on some of these beauties. Congratulations to all involved and let us see what comes our way in the 2006/2007 season.

## 144 MHz Weak Signal

Division	Category	Distance	Station(s)	Date
<b>NATIONAL</b>				
Top Overall Distance		2933 km	TropoB VK2KRR, Lee, The Rock -- VK6JR, Wayne, Dunsborough, OF76mi	02.01.06
Top Overall Distance		2155 km	TropoB VK5UBC, Brian, Gawler -- VK6AO, Cec, Perth OF77vw	08.03.06
Top Overall Distance		2102 km	Es VK4MIK, Mike, Butchers Ck. -- VK3VG, Trevor, Kyabram	18.12.05
Top Overall Distance		1989 km	Es*, VK2KRR, Lee, The Rock -- VK4MIK, Mike, Butchers Ck.	18.12.05
Tropo - B		2933 km	VK2KRR, Lee, The Rock -- VK6JR, Wayne, Dunsborough, OF76mi	02.01.06
Tropo - B		2155 km	VK5UBC, Brian, Gawler -- VK6AO, Cec, Perth OF77vw	08.03.06
Tropo - B		1911 km	VK5UBC, Brian, Gawler -- VK6BE, Bob, Albany, OF84ww	05.03.06
Tropo - B		1900 km	VK5UBC, Brian, Gawler -- VK6WG, Wally, Albany	08.02.06
Tropo - BS		1128 km	VK5UBC, Brian, Corny Point -- VK7AC, Norm, QE38lp	10.01.06
Tropo - BS		1038 km	VK5UBC, Brian, Gawler -- VK7AC, Norm, QE38lp	27.02.06
Tropo - BS		1034 km	VK5UBC, Brian, Corny Point -- VK7YB, Dion, QE28ww, Burnie	10.01.06
Tropo - BS		679 km	VK7HDX, Karl, Launceston, QE38nm -- VK5DK, Colin, Mt Gambier, QF02je	08.01.06
Tropo - I		975 km	VK5UBC, Brian, Gawler -- VK2TWR, Rod, QF43pl	22.12.05
Tropo - I*		914 km	VK5UBC, Brian, Corny Point -- VK2KRR, Lee, The Rock, QF34mr	24.08.05
Tropo - I		894 km	VK2KRR, Lee, The Rock -- VK5ZPG, Peter, Quorn	16.04.06
Tropo - I		890 km	VK5AKK, Phil, Upper Sturt, PF94ix -- VK2TWR/p, Rod, QF44fb	13.01.06
Tropo - ID		894 km	VK2KRR, Lee, The Rock -- VK5ZPG, Peter, Quorn, PF97aq	24.09.05
Tropo - ID*		757 km	VK2KRR, Lee, The Rock -- VK5UBC, Gawler, Brian, PF95ij	10.08.05
Tropo - ID		750 km	VK2KRR, Lee, The Rock -- VK5ZK, Garry, Goolwa, PF94ij	18.09.05
Tropo - ID		735 km	VK2KRR, Lee, The Rock -- VK5ZLX, Peter, Barossa Valley, PF96mk	24.09.05
Sporadic E		2102 km	VK4MIK, Mike, Butchers Ck. -- VK3VG, Trevor, Kyabram	18.12.05
Sporadic E*		1989 km	VK4MIK, Mike, Butchers Ck. -- VK2KRR, Lee, The Rock	18.12.05
Sporadic E		1849 km	VK5UBC, Brian, Corny Point -- VK4TZL, Glen, QG64ij	02.01.06
Sporadic E		1804 km	VK2KRR, Lee, The Rock -- VK8GF, Jeff, Alice Springs, PG68wg	15.12.05
Aurora		627 km	VK2KRR, Lee, The Rock -- VK5DK, Colin, Mt Gambier	11.09.05
Aurora		552 km	VK2KRR, Lee, The Rock -- VK3ZOB, Russell, Port Fairy	11.09.05
Aurora		387 km	VK2KRR, Lee, The Rock -- VK3AXH, Ian, Ballarat	24.08.05
Aurora		379 km	VK2KRR, Lee, The Rock -- VK3JJ, Jim, Coronet Bay, QF21rn	11.09.05
AE		456 km	VK4CDI, Phil, Hodgsonvale, QG52zh -- VK2DVZ, Ross, Port Macquarie	28.07.05
Meteor D		1739 km	VK4CDI, Phil, Hodgsonvale, QG52zh -- VK7MO, Rex, Hobart, QE37pc	31.07.05
Meteor D		1438 km	VK5PO, John, Eden Valley, PF95mo -- VK4CDI, Phil, Hodgsonvale, QG52zh	23.07.05
EME		17794 km	VK2KRR, Lee, The Rock -- EA1YU, Augustin, Spain.	10.01.06
EME		16601 km	VK2KRR, Lee, The Rock, QF34mr -- ON4GG, Geert, Belgium, JO20ar	05.09.05
EME		16295 km	VK4CDI, Phil, Hodgsonvale -- ON4GG, Geert, Belgium, JO20ar	10.08.05
EME		15993 km	VK2KRR, Lee, The Rock, QF34mr -- DL9MS, Joe, Germany, JO54wc	08.08.05

## 146 MHz FM Simplex & Repeaters

Division/Category	Distance	Stations	Date
<b>NATIONAL</b>			
FMS - 1	1919 km	VK5UBC, Brian, Gawler -- VK6DM, Frank, Albany, OF84va	27.02.06
FMS - 2	1023 km	VK2KRR, Lee, The Rock -- VK5AEP, John, Port Lincoln	24.01.06
FMS - 3	947 km	VK2KRR, Lee, The Rock -- VK5AJW, Jim, Cowell	23.04.06
FMS - 4*	923 km	VK4M K, Mike, Butchers Ck -- VK4JO, Mike, Gladstone	01.10.05
FMR - 1	2817 km	VK2KRR, Lee, The Rock -- VK6RMS, Boddington, Mt Saddleback	02.01.06
FMR - 2	2102 km	VK5UBC, Brian, Gawler -- VK6RMW, Mt William, Mandurah	06.03.06
FMR - 3	2086 km	VK4ABW, Gary, Bluewater -- FK8ZHA, Mount Do, New Caledonia	07.10.05
FMR - 4	2062 km	VK5UBC, Brian, Gawler -- VK6RMS, Mt Saddleback, Boddington	06.03.06

## 432 MHz Weak Signal

Division/Category	Distance	Stations	Date
<b>NATIONAL</b>			
Tropo - B	1900 km	VK5JBC, Brian, Gawler -- VK6WG, Wally, Albany	27.02.06
Tropo - I	1004 km	VK5UBC, Brian, Corny Point PF85mc -- VK2EMA, Mark, Tottenham, QF37qs	04.10.05
Tropo - I*	914 km	VK5UBC, Brian, Corny Point PF85mc -- VK2KRR, Lee, The Rock, QF34mr	04.10.05
Tropo - I	894 km	VK2KRR, Lee, The Rock -- VK5ZPG, Peter, Quorn	16.04.06
Tropo - I	890 km	VK5AKK, Phil, Upper Sturt PF94ix -- VK2TWR/p, Rod, QF44fb	13.01.06
Tropo - ID	387 km	VK2KRR, Lee, The Rock -- VK3AXH, Ian, Ballarat, OF12w	10.09.05
EME	18197 km	VK4CDI, Phil, Hodgsonvale -- HB9Q, Dan, Switzerland, JN47cg	12.11.05
EME	15122 km	VK4ABW, Gary, Bluewater -- HB9Q, Dan, Switzerland, JN47cg	17.01.06

## 439 MHz FM Simplex & Repeaters

Division/Category	Distance	Stations	Date
<b>NATIONAL</b>			
FMS - 1	204 km	VK5UBC, Brian, Gawler -- VK5AJW, Jim, Cowell	02.02.06
FMS - 2	153 km	VK5UBC, Brian, Corny Point -- VK5AKK, Phil, Adelaide PF94ix	15.02.06
FMS - 3	139 km	VK2KRR, Leigh, The Rock -- VK3V., David, Wangaratta	22.04.06
FMS - 4	121 km	VK2KRR, Leigh, The Rock -- VK2XB, Ian, Coleambally	22.04.06
FMR - 1	324 km	VK2KRR, Leigh, The Rock -- VK3RMM, Mt Macedon	22.04.06
FMR - 2	306 km	VK5UBC, Brian, Gawler -- VK3RRU, Merbein, Mildura	09.09.05
FMR - 3	244 km	VK4MIK, Mike, Butchers Ck -- VK4RAT, Townsville	01.10.05
FMR - 4	216 km	VK2KRR, Leigh, The Rock -- VK3RTC, Mt Wombat, Europa	30.04.06

## 1296 MHz Weak Signal

Division/Category	Distance	Stations	Date
<b>NATIONAL</b>			
Tropo - I	890 km	VK5AKK, Phil, Upper Sturt PF94ix -- VK2TWR/p, Rod, QF44fb	13.01.06
Tropo - I	861 km	VK5AKK, Phil, Upper Sturt PF94ix -- VK2EMA, Mark, Tottenham, QF37qs	13.08.06
Tropo - I	770 km	VK2KRR, Lee, The Rock -- VK5NY, Roger, McLaren Flat	20.02.06
Tropo - I*	760 km	VK2KRR, Lee, The Rock -- VK5AKK, Phil, Upper Sturt PF94ix	19.12.05
<b>VK1 DIVISION</b>			
<b>VK2 DIVISION</b>			
Tropo - I	270 km	VK2KRR, Lee, The Rock -- VK5NY, Roger, McLaren Flat	20.02.06
Tropo - I*	760 km	VK2KRR, Lee, The Rock -- VK5AKK, Phil, Upper Sturt PF94ix	19.12.05
Tropo - I	627 km	VK2KRR, Lee, The Rock -- VK5DK, Colin, Mt Gambier	04.01.06
Tropo - I	333 km	VK2KRR, Lee, The Rock -- VK3HZ, David, Balwyn Melb	14.01.06
<b>VK3 DIVISION</b>			
<b>VK4 DIVISION</b>			
Tropo - I	255 km	VK4ABW, Gary, Bluewater -- VK4BEG, Russell, Lake Eacham	12.11.05
Tropo - I	58 km	VK4CDI, Phil, Hodgsonvale, QG52zh -- VK4OE/p, Doug, Warwick, QG51xs	12.11.05
<b>VK5 DIVISION</b>			
Tropo - I	890 km	VK5AKK, Phil, Upper Sturt PF94ix -- VK2TWR/p, Rod, QF44fb	13.01.06
Tropo - I	861 km	VK5AKK, Phil, Upper Sturt PF94ix -- VK2EMA, Mark, Tottenham, QF37qs	13.08.06
Tropo - I*	760 km	VK5AKK, Phil, Upper Sturt PF94ix -- VK2KRR, Lee, The Rock	19.12.05
<b>VK6 DIVISION</b>			
<b>VK7 DIVISION</b>			
<b>VK8 DIVISION</b>			

## 2.4 GHz Band

Division/Category	Distance	Stations	Date
<b>NATIONAL</b>			
Tropo - ATV	175 km	VK2TAS, Johnathon, Mt Gibraltar -- VK2TRF, Jack, Watagan Ranges	18.12.05
Tropo - ATV	150 km	VK2TAS, Johnathon, Mt Gibraltar -- VK2TRF, Jack, Central Mangrove	05.11.05
Tropo - ATV	110 km	VK2TRF, Jack, Beacon Hill -- VK2TAS, Johnathon, Mt Gibraltar	29.09.05

## 10 GHz Band

Division/Category	Distance	Stations	Date
<b>NATIONAL</b>			
Tropo - ATV	76 km	VK2GG, Dan, Dobroyd Point -- VK2TRF, Jack, Wybung Head	18.06.06

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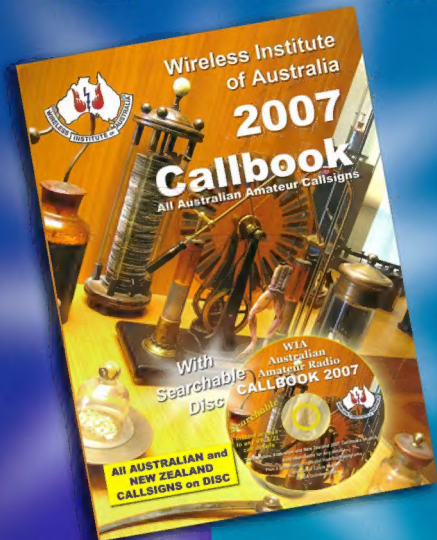
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<b>VK3 Victoria</b> VK3JJB John Brown VK3PC Jim Linton VK3APC Peter Mill	Phone 03 9885 9261 <a href="mailto:arv@amateurradio.com.au">arv@amateurradio.com.au</a>	VK1WIA, Sunday 11am and 8pm, 3.615 and 7.085 (LSB), 10.130 (USB), VK3RML 146.700, VK3RMM 147.250, VK3RMU 438.075.
<b>VK4 Queensland</b> VK4BY Don Wilchelski VK4ZZ Gavin Reibelt VK4KF Ken Fuller	<a href="mailto:vk4advisory@wia.org.au">vk4advisory@wia.org.au</a>	VK1WIA, Sunday 9.0am via HF and major VHF/UHF rpters
<b>VK5 South Australia and Northern Territory</b> VK5OV David Box VK5APR Peter Reichelt VK5ATQ Trevor Quirk	Phone 08 8294 2992 <a href="mailto:boxesdnm@lm.net.au">boxesdnm@lm.net.au</a> <a href="mailto:peter.reichelt@bigpond.com">peter.reichelt@bigpond.com</a> <a href="mailto:vk5advisory@wia.org.au">vk5advisory@wia.org.au</a>	<b>VK5 South Australia</b> VK5WI: 0900 am local time. 1.843 LSB, 3.550 LSB, 7.095 LSB, 28.470 USB, 53.1 AM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 439.975 FM Adelaide North. <b>VK8 Northern Territory</b> 0900 local time 3.555 LSB, 7.050 LSB, 10.130 USB, 146.900 FM.
<b>VK6 Western Australia</b> VK6NE Neil Panfold VK6XY Roy Watkins VK6OO Bruce Hedland-Thomas	Phone 08 9351 8873 <a href="http://www.vk6.net/">http://www.vk6.net/</a> <a href="mailto:vk6advisory@wia.org.au">vk6advisory@wia.org.au</a> <a href="mailto:vk6ne@upnaway.com">vk6ne@upnaway.com</a> <a href="mailto:vk6xv@bigpond.net.au">vk6xv@bigpond.net.au</a>	VK6WIA: 146.700 FM (R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury), 147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900, 147.000, 147.200, 147.250 and 147.350 MHz. Also in "Realaudio" format from the VK6 WIA website
<b>VK7 Tasmania</b> VK7ZAX Phil Corby VK7DG Dale Barnes VK7KK Reg Emmitt	Phone 03 6234 3553 <a href="mailto:vk7advisory@wia.org.au">vk7advisory@wia.org.au</a> <a href="mailto:phil.corby@tassie.net.au">phil.corby@tassie.net.au</a> <a href="mailto:vk7dg@wia.org.au">vk7dg@wia.org.au</a> <a href="mailto:regemmm@ozemail.com.au">regemmm@ozemail.com.au</a>	VK1WIA Sunday 9am on VK7WI network: 3.570MHz LSB, 146.700 MHz FM (VK7RHT South), 53.825MHz FM (VK7RAD South), 147.000MHz FM (VK7RAA North), 146.750 FM & 53.825MHz (VK7RNW North West), 146.625 MHz FM (VK7RMD North West), UHF CB Channel 15 (Hobart) and 27MHz CB - 27.225MHz LSB (Hobart). Followed at 9:30am with VK7 Regional News Broadcast also on 7.090MHz LSB & 14.130MHz USB

### Notes

1. Only three members of the state advisory committees are listed.
2. All listings are preliminary. They will be updated each month as required.
3. Membership application forms are available from the WIA web site [www.wia.org.au](http://www.wia.org.au) or the national office address above.

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Amateur



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